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THE OIL WEEKLY

Devoted Exclusively To The Production and Transportation of Oil and Gas

Engineering News Statistics

Another Wild Well Controlled With

HUGHES VALVES

The above photograph shows the Morgan Petroleum Company's C. E. Stout, No. 1 well at Oklahoma City, "running wild," making more than 35,000 barrels of oil and 100,000,000 feet of gas per day.

This well became uncontrollable Thursday, September 18th, and ran wild until the following Sunday.

It was controlled by the use of a die nipple and two 9-inch, A.P.I. 8-thread, 5000 lb. test, Hughes Drilling Valves.

The two Hughes valves used are shown in the inset.

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January 23, 1931

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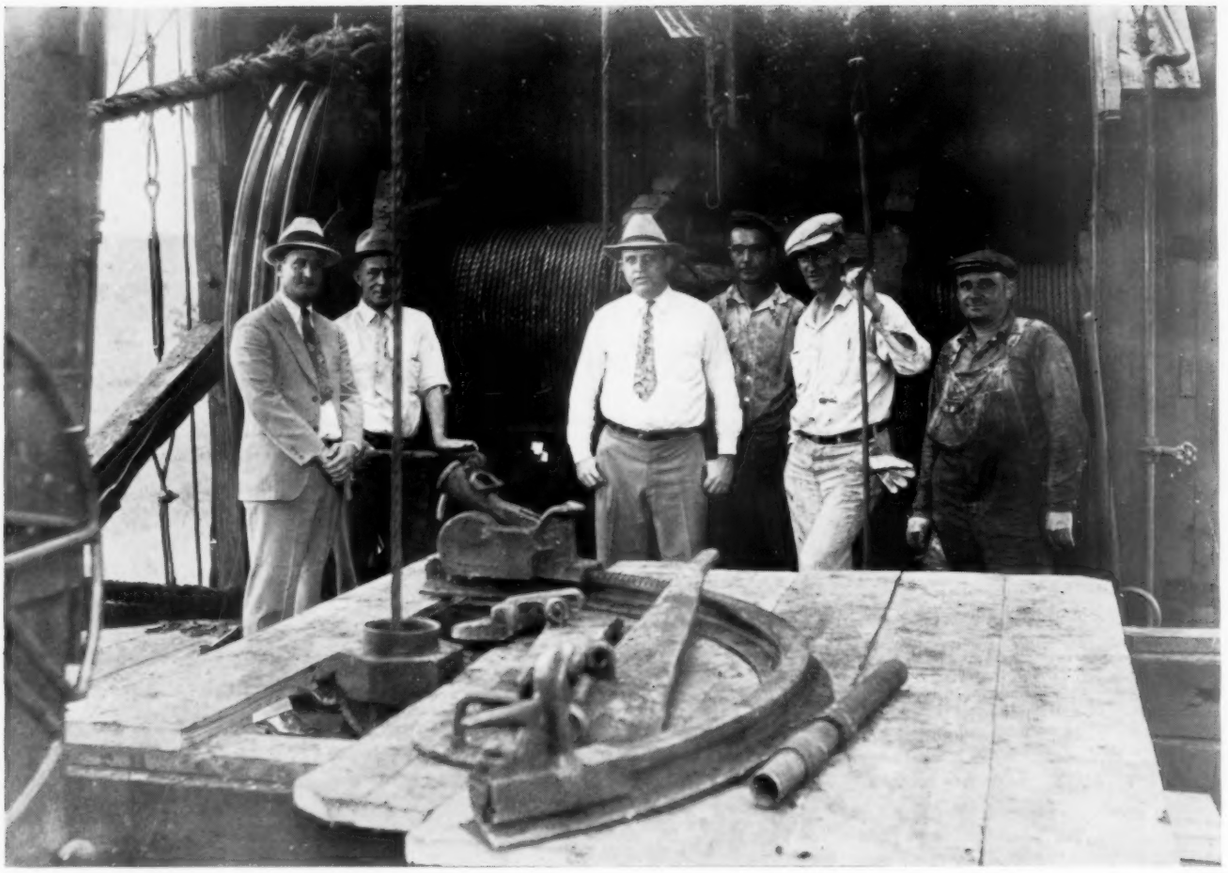

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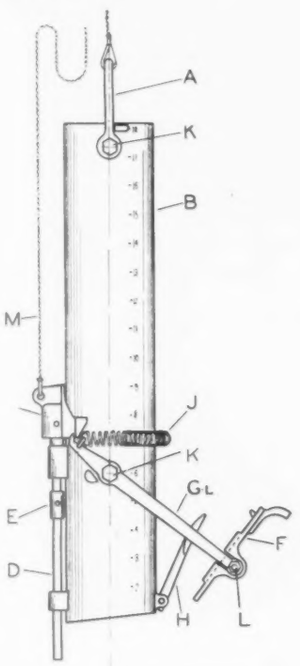

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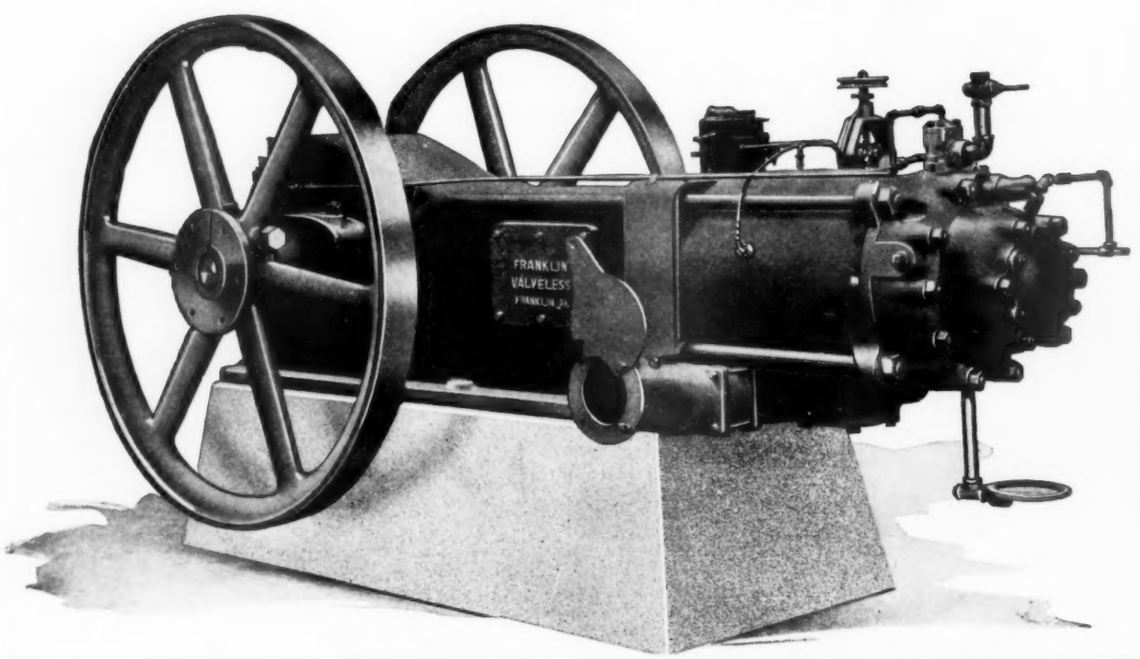

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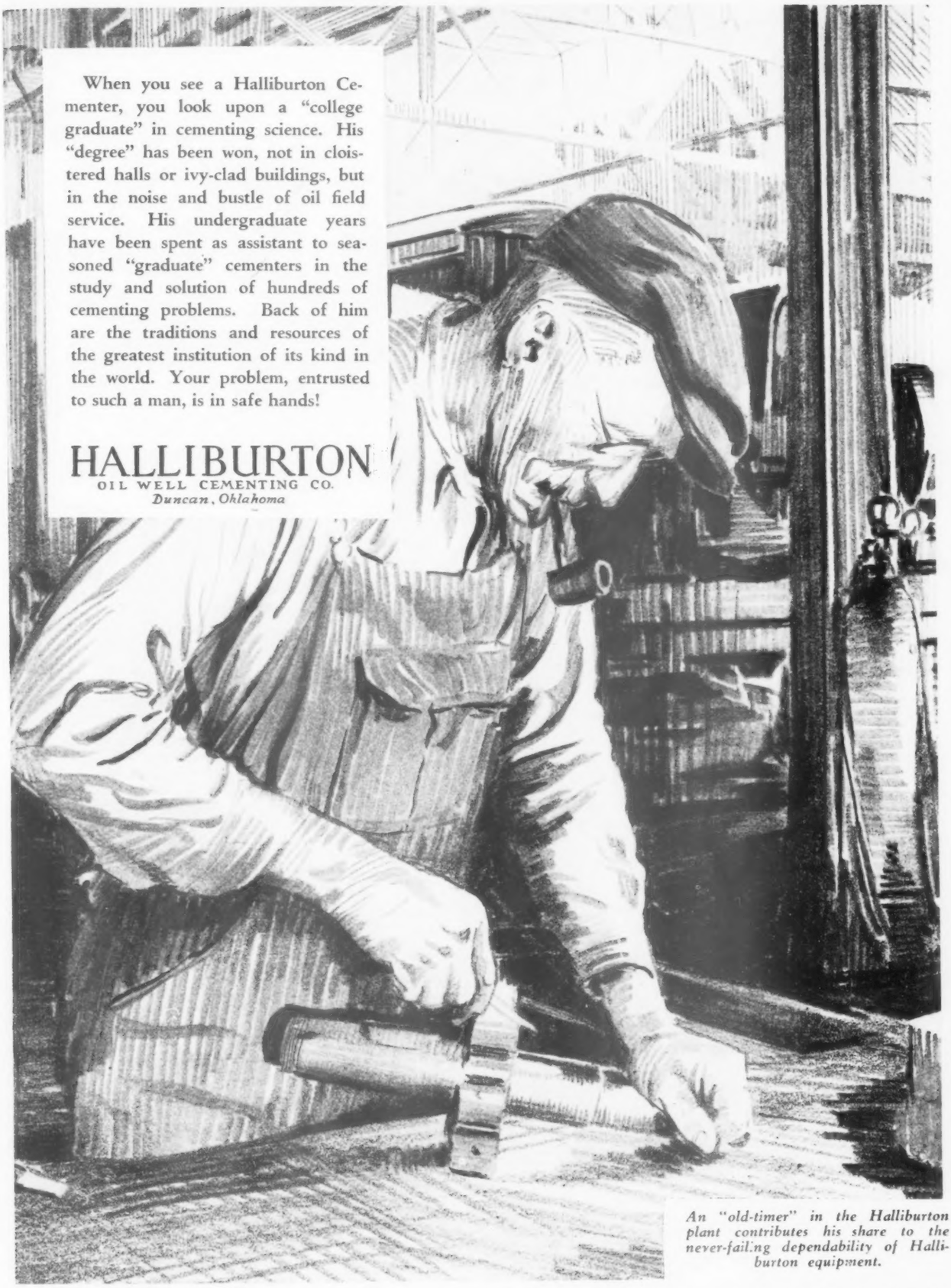

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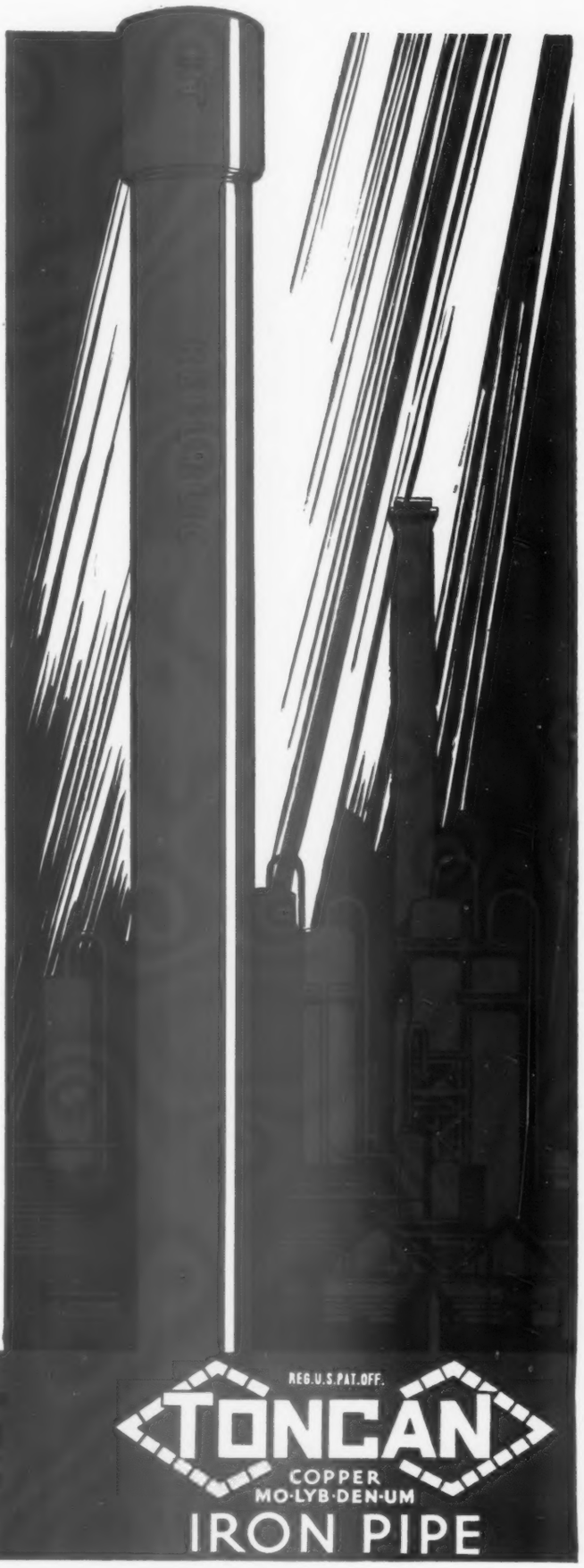

TONCAN IRON HOLDS MASTERY OVER ACID SLUDGE

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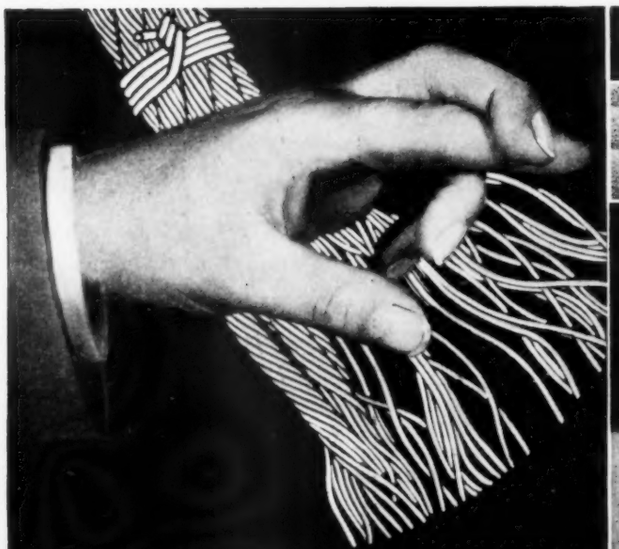

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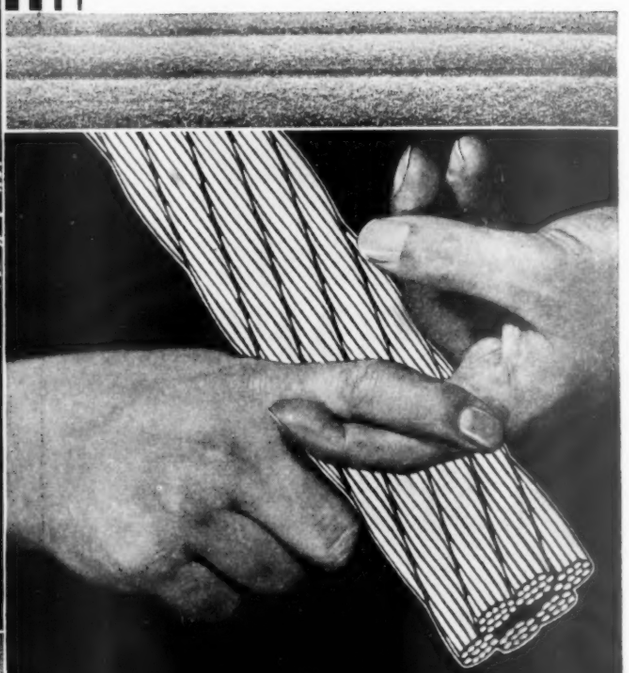

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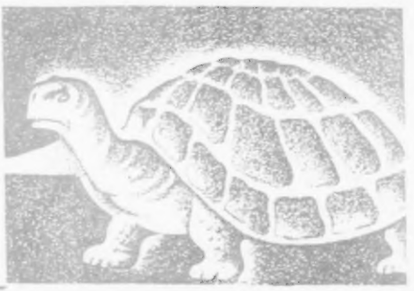

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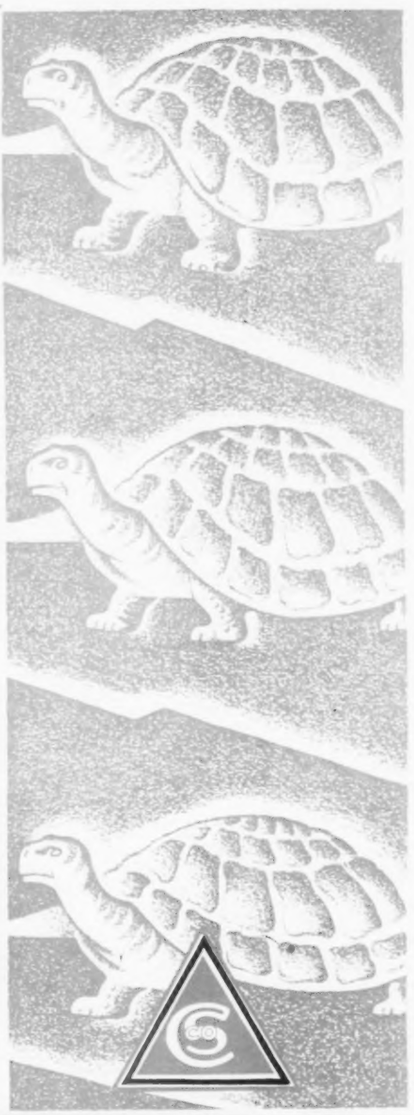

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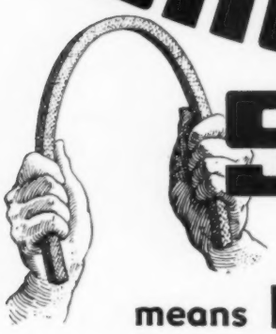


FIG. 1

Make this convincing test, **yourself!** Take an ordinary, straight-sided V-belt. Bend it as it would bend in going around a pulley. What happens? The top **narrows,** the bottom **widens,** the sides **bulge out** (Figure 1).

Try to fit this shape (figure 1) into the sheave groove. Two facts are clear. (1) The belt will get excessive wear where it bulges---**shorter life!** The whole side of the belt will not uniformly grip the pulley; a loss in drive efficiency.

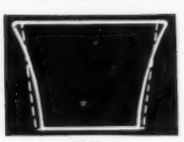
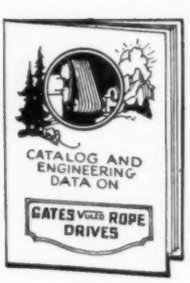


FIG. 2

Now bend the belt with the **concave side** (patent pending), the Gates Vulco Rope. How different! As this belt bends it assumes a shape that **exactly fits** the sheave-groove (Figure 2). Two **advantages.** (1) This belt wears **evenly--longer life!** (2) Its entire side-width grips the pulley--**full delivery of power!**



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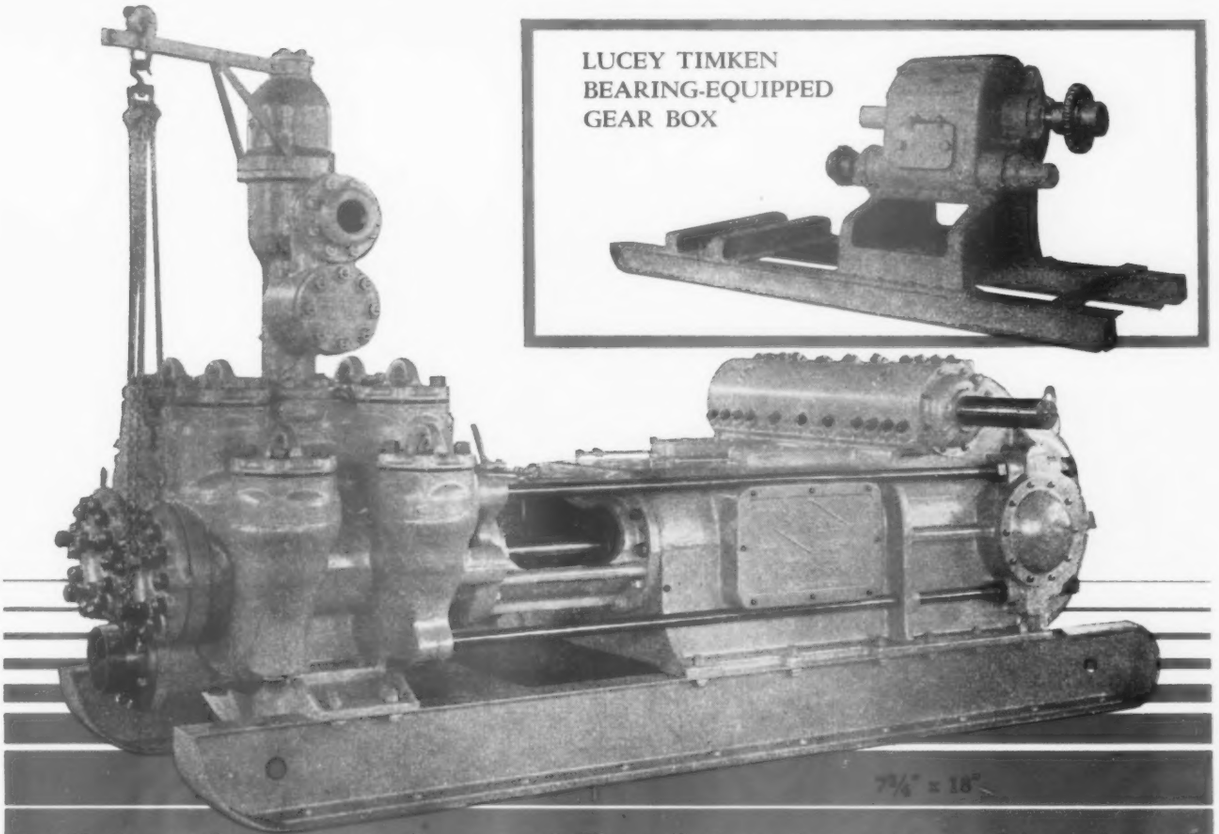

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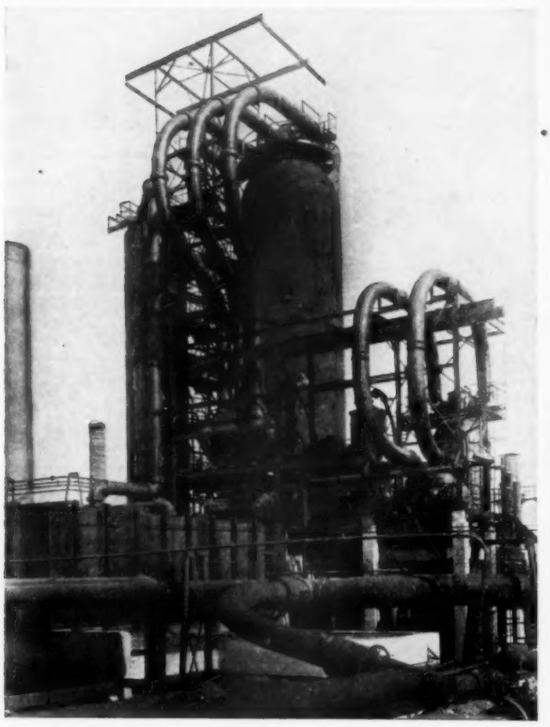

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VOLUME 60, No. 6

JANUARY 23, 1931

Edited Weekly at Houston, Texas

SPENCER W. ROBINSON, EDITOR

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THE OIL WEEKLY

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1931 Crude Production *Must Not* Exceed 850 Million Barrels

By H. J. STRUTH
Staff Economist

A CAREFULLY worked out program of production for both the producing and refining branches of the industry, furnishes evidence to show that crude production must be maintained at a rate of from 50 to 60 million barrels less than the total production of last year. In order to insure economic stability this year, the industry must maintain crude production at a rate not to exceed a daily average for the year of 2,328,000 barrels, or a total output for the full year of 850 million barrels. If this suggested production program is carried out this year, there is every reason to believe that it will be accompanied by an improved market structure.

Looking at the oil situation from every angle, it is apparent that the maximum demand for crude this years will not exceed a total of 946 million barrels, including domestic consumption and exports. Since at least 60 million barrels of this total will constitute imported crude, the net demand for American Crude will probably not exceed 885 million barrels. Judging from the demonstrated ability of the industry to hold production below the actual demand, it is not unreasonable to expect that continued control could effect a total reduction in crude stocks this year of nearly 35 million barrels. In the belief that this is possible and with the conviction that such a reduction in storage is necessary to the economic welfare of the industry, calculations have included a contemplated reduction in stored crude supplies of 34,865,000 barrels, setting the maximum production limit for the year at 2,328,000 barrels daily.

Gasoline Requirements

A survey of probable gasoline requirements indicates that this year's total demand will only show a gain over 1930 of 3.94 per cent, compared with an approximate gain of 5.05 per cent last year and 13.65 per cent gain during 1929. Further analysis shows that the industry cannot expect a gain of more than 3.18 per cent in the domestic demand for gasoline, while exports are not expected to exceed 7.65 per cent over last year. This conclusion is based upon an indicated gain in motor vehicle registrations of less than 300,000 during the past year and a possible gain this year of about 1,700,000. This would indicate that the number of motor vehicles registered in the United States on January 1, 1931, did not exceed 26,800,000, while the outlook for this year may result in a total registration on December 31, 1931, of 28,500,000 motor vehicles. On the basis of previous studies of gasoline demand, it has been determined that the total quantity of gasoline required for all purposes this year will amount to about 478,345,000 barrels, a gain over last year of about 18,144,000 barrels. In volume, therefore, the petroleum industry faces a fairly large increase in gasoline demand, despite the depression that has prevented the gains of recent former years. If importers

NEXT WEEK

Annual Statistical and World Review Number

The January 30th issue of The OIL WEEKLY will contain complete statistics on all important oil producing areas of the world together with a comprehensive review of operations during 1930 and a forecast of development for 1931. Watch for this issue—you will want to preserve it for your reference files.

Economic Production Limit to Effect Normal Crude Stock Reduction

Year 1931

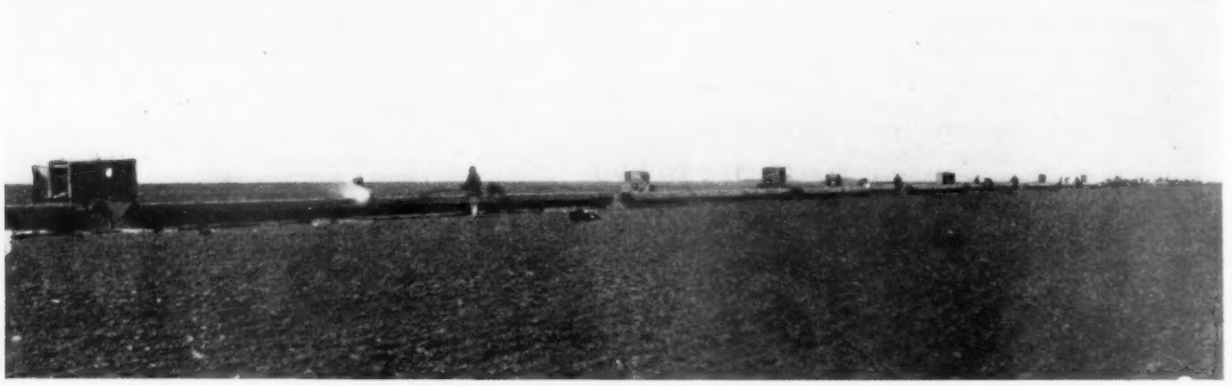
(Barrels)

	Indicated Total Demand	Desired Stock Reduction	Net Production Required	Daily Average	Production Limit First Quarter, 1931 (Daily Avg.)
Arkansas	21,170,000	635,000	20,535,000	56,000	52,000
California	213,525,000	13,129,000	200,396,000	549,000	500,000
Kansas	42,705,000	1,814,000	40,891,000	112,000	105,000
Louisiana	28,470,000	907,000	27,563,000	76,000	71,000
Oklahoma	198,925,000	9,308,000	189,617,000	519,000	465,000
Texas	288,455,000	5,443,000	283,012,000	775,000	700,000
Balance U. S.	91,615,000	3,629,000	87,986,000	241,000	225,000
Total	884,865,000	34,865,000	850,000,000	2,328,000	2,118,000

of foreign gasoline carry out their professed intention to curtail production and limit shipments of this product to the United States, they will prevent the importation of more than 13 million barrels of foreign gasoline this year. This would mean a net quantity of American-produced gasoline of 465,345,000 barrels, of which about 58 million barrels will constitute natural gasoline and benzol, leaving a net quantity of gasoline to be manufactured from crude of 407,345,000 barrels. At the rate cracking has increased the yield of gasoline from crude during the past two years, it is believed that this year's average yield will be approximately 44½ per cent from crude. That rate of yield will necessitate the processing of about 915 million barrels of crude, of which about 60 million barrels will represent foreign oil, or a net quantity of American crude to be refined of about 855 million barrels. Add to this figure the 30 million barrels that is expected to be exported and consumed on leases, the total demand for American crude amounts to 885 million barrels. This represents a daily average of about 2,424,000 barrels of indicated demand for American crude. Allowing for a reduction in stocks of about 35 million barrels reduces the total economic production limit of the United States to but 850 million barrels, or a daily average of 2,328,000 barrels.

Of particular interest to producers at this time is the accompanying analysis showing how the crude demand during this year will probably be divided among the producing states; the amount that stocks should be reduced; net production required and indicated daily average economic production limit for the year, and allowable production for the first quarter of this year:

A constructive view of the situation at this time cannot fail to result in the conclusion that the industry must continue its curtailment activities throughout the present year. The facts at hand plainly show that the industry cannot afford to produce more oil this year than is indicated to be the economic limit. If production is increased to meet current requirements, without considering the necessity for a reduction in crude stocks, it is obvious that little if any improvement can be expected. However, if every effort is made to maintain production schedules of the respective producing states within the bounds set forth above, stocks of crude will be materially reduced and the market situation will readily reflect the benefits that are bound to accrue to the industry under such a safe and sane program of operation. Continued effort in all fields to keep production at present levels through the first quarter of this year will undoubtedly result in a needed upward revision of production schedules during the second and third quarters, at market prices that will insure a profit on every barrel of oil produced. It would seem a constructive policy to hold production at present levels until March 31, rather than attempt to increase output to the indicated economic limit for the year, since the demand outlook during the spring and summer cannot fail to effect substantial upward revisions in allowable production. Holding back unnecessary production from now until March 31 will undoubtedly spell the release of necessary additional production after that date at higher prices.



Section of 24-inch gas line building from Texas Panhandle to Chicago—1000 miles—by Continental Construction Company. Note three sections being electrically welded (Fleetweld process of Lincoln Electric Company) before rolling into the ditch

Washington Conference Seeks Limiting of Imports

Efforts for tariff at this time dropped in favor of reducing crude imports and embargo on refined oils

By R. L. DUDLEY

WASHINGTON, D. C.—After spending two days during which every conceivable argument to support a tariff on crude petroleum and its products, or an embargo on same, was brought up, the meeting of independent oil men which convened here on Thursday, January 15, voted Friday afternoon to adopt as the policy of an appointed executive committee, a fight for a reduction of crude oil imports with no refined oil imports instead of either a tariff of complete embargo.

The resolution, which was unanimously adopted late Friday, provided for a fight for legislation which would cut imports of crude petroleum to 20 per cent of the amount imported during 1928. Figures given on the floor of the conference indicated that imports in 1928 "equalled 92,799,000 barrels of crude." Imports in 1930, including an estimate for the last month on which official figures were not available, were given as "equalling 111,176,000 barrels of crude." (Total imports of crude were of course less, but statisticians at the meeting figured in gasoline imports as equalling a considerable larger number of barrels).

On the basis of the resolution adopted, the actual effect of the legislation sought would be to reduce imports to considerably less than 20,000,000 barrels of crude, and no refined products.

The operators are requesting that imports be taken only from those countries that were exporting to the United States in 1928.

Congress Won't Open Tariff Question

The change in front from a fight for a tariff or an embargo came after a poll of the Ways and Means Committee had indicated that there was no likelihood of the tariff schedule being re-opened. The situation was that if the schedule was re-opened for petroleum, the entire tariff matter would be brought back into congress and proponents of the recent tariff law appeared to be very much averse to such a posibility. There was considerable talk the first day of the oil conference as to the possibility of agreement being reached with the Democratic side of the house whereby only oil would be brought up if the tariff matter was re-opened, but apparently that idea got nowhere.

The meeting, attended by a large number of independent oil men and representatives of organizations of various types not actually in the oil industry, resulted from a call sent out by the governors of Oklahoma and Kansas to other governors asking them to appoint a number of representatives, some from the ranks of the independent producers and some to represent the public. Wirt Franklin of Oklahoma was elected chairman, Tom Cranfill of Texas, vice-chairman and Russell Brown, secretary.

None of the major companies were represented by delegates although some had observers present. The meetings were opened to whomever desired to attend and several congressmen and senators addressed the oil men at various times.

Just how a reduction of imports would be worked out was not entered into by those who introduced the resolution. In fact, little explanation was given on the floor as to why of the change in front, but inquiry developed the idea that "someone" had passed the word down that there was a chance of a reduction of imports and no chance on a tariff or embargo. If such legislation should be adopted by congress it will, of course, lead to a proration of imports just as domestic production has been prorated among American producers.

Wirt Franklin, in discussing the proposed fight for a reduction or proration of imports of crude, urged that the executive committee appointed to carry on the fight call to the attention of congress the fact that in the Oklahoma City pool operators are curtailing down to one per cent of their potential production, and said that it was his information that in the Yates pool the allowable is around three per cent, in the Hobbs field five per cent, and in the Van field less than 10 per cent. A member present corrected him on the Van field, saying that the runs during the latter part of 1930 have been less than three per cent of the potential production.

Wilbur Not Administration Spokesman

The two days were spent largely in talks by the various representatives present, all of whom painted a gloomy picture of the independent oil operator. It was enlivened by an attack by Chairman Franklin on Secretary of the Interior Wilbur because of an editorial accredited to Secretary Wilbur in which he opposed a tariff and referred to the "over-production" of the country and the need for "conservation" and which attack was later repeated by several men attending the conference. Then Secretary of War Hurley, a personal friend of many of the Oklahoma oil men present, addressed the meeting to explain that Secretary Wilbur did not speak the official mind of the administration, which, Secretary Hurley said, had not expressed itself either for or against a tariff.

And Secretary Hurley put his foot into the bag by saying that we had as well realize that there is an over-production, which statement, after he had left, precipitated another argument as to the Secretary of War's meaning on the word "over-production." Chairman Franklin having said while Secretary Hurley was seated at the speaker's table

just prior to the secretary's talk, that there is no "over-production", that in only one year since 1913 had there been an over-production, and that our trouble has been over-importation.

This misunderstanding as to the secretary's meaning of "over-production" was cleared up at the afternoon session when the secretary sent word to the meeting through Mr. Franklin that he had meant "potential over-production", and everybody was happy.

But it appeared that the members of the cabinet and the operators really needed a common, or universal petroleum dictionary, because exception had also been taken to Secretary Wilbur's use of the word "conservation", Mr. Franklin saying that what the secretary evidently stood for was not "conservation" but "reservation". Friday afternoon Secretary Wilbur appeared before the conference and explained just what he meant by "over-production" and "conservation" and again everything was happy.

An important part of Friday's session was the presentation to those present of the Department of the Interior's "Compact Plan", which, with the secretary's speech before the conference, is covered on other pages in this issue.

Committee of Seven

The affairs of the conference were left in the hands of an executive committee of seven who were authorized to take whatever steps are proper to push the fight for curtailment of crude imports. The committee follows:

A. M. Landon, Independence, Kansas.
Orville Bullington, Wichita Falls, Texas.
W. J. Kemnitzer, Los Angeles, California.
J. Edward Jones, New York.
J. I. Cromwell, Muskogee, Oklahoma.
W. S. Hallinan, Charleston, West Virginia.
W. B. Harrison, Wichita, Kansas.

Garner Favors Tariff

At the first session, which was held in the caucus room of the house on Thursday morning, Representative John Garner of Texas, minority leader of the house, again pledged his support to a tariff on oil. "You sold me on it when we had the hearing last year and if you make out as good a case this year as you did last year, I'm for it again," he said.

Senator Morris Sheppard of Texas again pledged his support to a tariff bill. "You don't have to convince me this year or any other," he said. "I'm for you." He also said that if the matter could be re-opened he believed that the tariff advocates could secure the one vote by which it failed in the senate last year.

Representative Oscar Leavitt of Montana expressed himself as for the tariff.

"I became convinced last session that you had made a good case on a tariff for oil," said Senator Sam G. Bratten of New Mexico. "I voted for it then and I'll vote for it again."

Senator Shortbridge of California said, "It is not necessary for me to tell you how I stand on the question of an oil tariff. I am a protection tariff man."

Representative Hamilton Fish of New York pledged his aid in a talk on Thursday, and on Friday told members of the conference that a cargo of Russian gasoline had come into an Atlantic Coast port and that they could add Soviet Russia to the list of nations shipping refined oil into the United States.

Congressman Attacks Shell

Representative Crowther of New York pledged his aid in emphatic terms. He also paid his compliments to H. L. Doherty under whose name full page advertisements had appeared in Washington papers on Thursday, dealing with Mr. Doherty's ideas on the oil situation. He also attacked the Royal Dutch Shell saying:

"It wasn't 30 days after the tariff on oil failed at the last session until Shell stations sprang up everywhere I went."

At this point a telegram was read from E. B. Reeser of the Barnsdall Oil Company and President of the American Petroleum Institute, in which he explained himself for a tariff. A telegram was read from W. N. Davis, president of the Mid-Continent Oil & Gas Association, in which action for a tariff was urged.

It was about this time that Chairman Franklin said, prefacing his remarks with the statement—"It may be news to you—that the directors of the American Petroleum Institute a short time ago had voted favorably on a resolution favoring a tariff the only dissenting votes being representatives of companies importing oil from South America."

Aside from the speeches of the legislative visitors, the feature of Thursday morning's session was a long statement read by Mr. Franklin.

The statement had been prepared in advance and dealt with the statistical, historical and economic features of the situation which brought the independent operators to Washington. However, at intervals Mr. Franklin stepped aside from his prepared address to emphasize some point. It was on such an occasion when he laid the blame for the import situation on the Standard Oil Company (Indiana), Standard Oil Company of New Jersey, Gulf Oil Corporation and the Royal Dutch Shell and their subsidiaries. However, it appeared to the observer that Gulf Oil Corporation and the Shell groups, especially the Shell, came in for most of the attacks made during the conference.

After saying that the American independent operators had gone into a period of drastic curtailment on the assurance that there would be also a curtailment of foreign imports, Mr. Franklin declared, that:

"At the A. P. I. meeting in Chicago last December the committee on foreign curtailment reported that it had been unable to agree on the details as to how the matter should be handled and that consequently had not been able to reduce imports as much as they would have liked."

At another point in his address he declared that:

"The greatest menace to the independent oil man in America is the Royal Dutch Shell."

Individual State Problems Discussed

Each state was asked through a representative to discuss the situation in that state. Among the speakers were J. R. Dorsey of Bakersfield, California. He said California had curtailed and prorated until there was little left. J. C. Grimm of Ohio, F. W. Freeman of Colorado and A. M. Landon of Kansas spoke along the same lines, Landon saying that the cause for the situation in which the industry finds itself is "the greed of the leaders of the oil industry." Judge Freeman of Denver said that he was not so optimistic as to the effects of a tariff, but said that if the industry thought it would help he was for it.

Incidentally Judge Freeman at the morning's discussion had saved what appeared to be a very embarrassing situation when a member offered a resolution condemning Secretary Hurley for having contradicted the chairman as to whether or not there was an "over-production". The resolution failed to get a second, and Judge Freeman, in well chosen words disposed of what was beginning to be an awkward situation.

W. H. Bridges, representing the oil and gas committee of the Hobbs, New Mexico Chamber of Commerce told of the troubles in Hobbs, where the chamber of commerce and citizens want the allowable raised. He said that they were somewhat upset to learn that the companies operating there who told them they had no market for more Hobbs

oil were children of the companies that were importing a couple of million barrels of foreign crude a week.

J. Edward Jones of New York, in the afternoon made an attack on Secretary Wilbur because of the interview previously mentioned.

At this point a committee was appointed to draft a resolution to congress, Senator Gore of Oklahoma heading the committee and Orville Bullington being secretary. Other members were: W. J. Brundred of Pennsylvania; C. E. Curry, Kentucky; F. W. Freeman, Colorado; W. S. Hallinan, West Virginia; H. B. Garden, Kansas; R. P. Jackson, Montana; A. G. Dana, Wyoming; Van S. Welch, New Mexico; H. E. Harris, California; J. C. Grimm, Ohio.

A committee was appointed to poll the Ways and Means Committee, which committee never did make a formal report to the conference, but on whose findings it is presumed the change to a curtailment of imports was founded. This committee was: Fred Tucker, Van S. Welch, William Fulton, Tom Cranfill, Tom Hunter, Pat Malloy, Eugene Lorton, W. S. Hallinan, A. E. Fair, Fred Cook, Clyde Sears, Harold McGogan, R. J. Alexander, W. J. Kemnitzer.

A committee was also appointed to confer with the president.

A. E. Fair of Ohio followed R. C. Snyder of Kentucky, Friday in describing state conditions. Snyder said that Kentucky was in the same situation as the other states. Fair painted a picture of distress in Ohio, a picture of non-employment, of ruin. At the same time he charged that the importation of crude had not cut the price of petroleum products to the consumer, saying that a quart of lube costs just as much now as it did when his oil sold for more than $6 per barrel, whereas his crude sells for far less than a third of that price. He described himself as one of those "three-quart producers" and said that operators in his territory had sent him to represent the Southeast Ohio Oil & Gas Producers Association.

W. M. Fulton of Conrad, Montana, said that his state's allowable had been reduced to 5000 barrels a day, whereas only a few years ago they had had no trouble finding a market for 30,000 barrels a day. However, he attributed this to the flood of oil in the Mid-Continent but expressed the belief that a tariff would help.

Cranfil Attacks Gulf

The feature of the morning's session was a speech by Tom Cranfil of Dallas, president of the Texas Independent Oil Men's Association. He used plain words and attacked the Gulf Oil Corporation saying that that organization was trying to put the independent filling station people out of business.

He declared that the remedy for the situation, aside from the help a tariff or embargo would bring, would be to disintegrate the oil companies now having producing, refining and marketing facilities. It was his idea to allow a company to engage in but one branch of the industry, and said that his association believed that such a bill could be passed in Texas.

He also opposed unitization and application of the oil and gas ratio, but later in a personal interview appeared to be willing to participate in recognized engineering methods to prevent waste, but reiterated his stand that the independent oil man is cut off from competition if an oil company is allowed to operate in all three major branches of the industry. It was his idea, he explained, to allow an integrated company plenty of time to fix its affairs in the event that such a bill is proposed.

Senator Gore talked at length on the tariff situation, saying that he was not a tariff man but that his party (Democratic) in Oklahoma had written into its platform a plank asking that no discriminatory action be maintained against oil, and said that if there was justification for a tariff on anything there was justification for a tariff on oil. He said that he did not think that the tariff was a cure for suicide, but was willing to co-operate to the best of his ability to get a tariff bill through.

"Then, if it doesn't prove efficacious, we can try something else," he said.

Supply Men Also Effected

Bedford Sharp of Houston said that the supply man was effected by the present oil situation in the United States, told of large plants being cut to a fourth of their payroll, and suggested that the aid of the supply man be enlisted also.

Captain J. F. Lucey told of the non-employment situation and said that the oil companies had responded in a splendid manner to his requests for help as President Hoover's Non-Employment Commissioner in the Southwest. He said that he believed that the situation in that territory with the exception of Arkansas where the farm problem is very bad, would improve shortly.

Orville Bullington presented for action the resolution to congress which gave the first intimation that the conference had lost hope for a tariff this session. The resolution asked for a tariff or a curtailment in crude imports, with elimination of refined imports.

And a few minutes later Chairman Franklin asked and secured a resolution on fixing the policy of the conference as that of requesting a curtailment on crude imports down to 20 per cent of those in 1928, with elimination of gasoline imports completely.

SAND-DUMP, WIETZE FIELD, GERMANY

The oil sand is brought to the surface and washed with hot water, the washed sand being dumped as shown in photograph

Conservation . . .

"Use of Economical and Efficient Operating Principles"

By RAY LYMANN WILBUR
Secretary of the Interior

MY point of view in this oil question is that of a citizen interested in the wisest possible use of the resources of the country and of adequate handling of such resources for future welfare and national defense. I believe in conservation. I believe in the long range view. I am opposed to waste. I see no need for hurrying our use of irreplaceable natural resources stored through hundreds of millions of years of time and which will never come back again. Nevertheless, I am keenly sympathetic with the serious situation which confronts the oil industry. That this has been brought about through unfortunate practices, bad engineering, bad financial setups and overzealous competition, is perfectly clear. We though can not stop long to discuss the past. We must think of what can be done to solve the difficulties of the present and the future.

There is a distinct difference between conservation and proration. The failure to properly distinguish between them has caused some misunderstanding and confusion and is partially responsible for the present situation.

Conservation

Conservation means the development of any producing area in accordance with the most economical and efficient operating principles which will result in a maximum ultimate recovery. Properly applied, it reduces development costs and eliminates waste of oil and the natural gas which is so necessary to its economical production.

The need of conservation is not limited to periods of over-production. Sound producing methods demand that it be practiced in the development of all flush fields, whether or not overproduction exists in the industry at the time. The use of conservation methods in any new field should begin by controlling the location and spacing of the wells and consequently the acreage allowance per well. When production begins, conservation requires that a proper back pressure be maintained on each well and that a reasonable oil-gas ratio be preserved.

Conservation is not new to the oil industry. It was used in Mexico during the development of the high-pressure light oil fields in 1920-21. It has guided the operations of the Anglo-Persian Oil Company in the development of its large properties in Persia. It has been followed in the development by Tropical Oil Company in Colombia and by the companies producing oil in Venezuela. It was applied at Burbank in Oklahoma, through the location of one well to 10 acres, and has governed the development of the Yates and Van fields in Texas, and the Hobbs area in New Mexico, from the beginning.

All of this is sound production practice and should be continued in the fields where it is now being followed and should be the policy in all new fields discovered in the future. The details of operations under this plan will of course vary according to the character of the producing formation and the depth and pressure of the wells, but essentially the principle is the same.

Conservation is entirely constructive in that it makes for economy and efficiency and greater ultimate recovery and prevents excessive production in flush areas, and, when properly applied, can be practiced without injury to the individual well or to the field.

Proration

Proration has no connection with producing methods but is the term applied to the effort to allocate the amount of oil which may be taken from any given producing area. While it is entirely practical to curtail production from flush wells without injury to them, in most cases it is not possible to curtail production from pumping wells, particularly those which are making some water, or from small producing low-pressure wells which may be still flowing

▼ ▼ ▼ ▼ Proration

"No Connection With Producing Methods"

their producion either naturally or through the aid of air-gas lift, without serious injury resulting. Experience has shown that in many cases wells so curtailed can never be brought back to their normal production.

The flush fields are responsible for the situation which exists and should bear the burden of such curtailment as may be necessary for its correction.

Viewed from the standpoint of profit, it is possible with a reasonable market to produce flush wells in accordance with proper conservation principles profitably because these wells would flow and the cost of production is small. In most instances it is not possible with the same market to profitably produce oil from wells in old fields which may be pumping or making water or flowing by heads or flowing with air-gas lift, if the production of these wells is decreased, because the cost of production according to these methods is too great to permit a profit unless the wells be produced to their capacity. Also, as has been stated, in many cases it is not possible to restrict the production from such wells without injury to them, or perhaps without totally destroying them.

The backbone of a producing company and the foundation of the oil business is settled production. Any plan which interferes with this settled production and which may injure it, is unwise and is not in accordance with good production practice. If pursued too far it might well be disastrous.

The present situation is with us. No immediate remedy is possible. All that can be done is to determine upon and follow a sound plan for future development and operations which will permit the present situation to correct itself, and, as far as may be possible, prevent its repetition.

This may be in a large measure accomplished, if in the first place the industry as a whole will follow a moderate and conservative policy of acquiring new leases. The acquisition of new leases results in increased drilling, either to save rentals or to comply with lease obligations. Primarily, therefore, a conservative leasing policy is essential.

No Proration in Settled Areas

Interference with operations in old producing areas should be discontinued and producers in such old areas should be permitted to produce their oil according to sound methods and in the best interest of these oil properties.

The interests of all of those connected with the business of producing oil, whether they be individuals or corporations, lessees or lessors, will best be served on the one hand by not disturbing any old or settled production, and on the other hand by producing oil from all flush fields only in accordance with sound conservation practice.

Orderly, sane, reasonable, sound engineering plans for the recovery of oil and gas from beneath the ground must be universally adopted. In the face of staggering potential over-production, the members of the industry and the oil-producing states involved, must play fair with each other and with the consuming public. It is inevitable that the present over-drilling and successful wildcatting has almost drowned the oil industry in its own product. I see not substantial lasting remedy except that of a compact between the oil-producing states, approved by congress, so that there will be fair play, reasonable and sensible planning, unit operation where possible, and a proper protection of seasoned and established oil producing areas when they come in contact with flush fields.

This is a time for looking facts in the face, for a study by the industry, and by the units of government of exactly what should be done, or we will face great personal and national losses that are irreplaceable. If there was a simple remedy for this situation, it would have long ago been tried. In the long run, it is a world question. In the long run, old Doctor Price, working under the law of supply and demand, is going to determine much of the result, but that determination need not lead to disaster. It can lead to sustained prosperity, but the pace of the industry must be slowed down.

Proposed Interstate Oil

WASHINGTON, D. C.—An "Interstate Oil Conservation Compact", by which the Department of the Interior of the United States feels many of the present ills of the oil industry can be overcome, and which will work out toward "true conservation" was offered the industry here January 16, by Secretary Wilbur when he spoke before the Independent Oil Producer's conference.

Following a brief talk in which the secretary defined "conservation" he announced that the definite features of the plan he had in mind had been put on paper and were available to those present. There was no discussion of "Compact Plan" at the conference.

Briefly, the plan would provide for an interstate commission composed of representatives of oil producing states, uniform oil legislation, and uniform operating or conservation methods insofar as varied operating conditions would permit, and machinery to keep the compact in operation.

Here is the official statement on the plan, as released by Secretary Wilbur:

The Department of the Interior told THE OIL WEEKLY that it has made no definite plans to push the oil compact idea at this moment. It is the idea of the department that the industry should have time to digest the plan and then probably governors of oil producing states will be asked to call meetings of oil men to consider whether or not the industry desires to put the plan into effect.

I. A compact between the principal oil-producing states is a possible means for accomplishing the following necessary objects for an effective conservation program.

(1) *Uniformity of conservation laws* of the major producing states. Ratification of the compact would be an enactment by each state of certain uniform principles, leaving details to be filled in by legislation, to accord with varying local conditions. The objective would be to balance the conservation efforts of the various adhering states, so that a voluntary restriction of production in one would not be offset by increased production in another. Such a balance would be effected through liaison provided by the compact between the various state enforcing bodies.

(2) *Uniformity of enforcement,* by the creation or recognition of an individual body in each state, with provisions for liaison between them so that periodical conference between them would be required and the general orders of each body affecting production would be effective only after service on the others. A balance between conservation measures taken in each state would thus be maintained. A permanent advisory interstate commission, composed of one member from each state commission, would provide the necessary liaison.

(3) *Stability* of these uniform key provisions over a period of years sufficient to guarantee orderly development programs, that is, by providing that revision shall be at stated periods after conference of the related enforcing groups.

(4) *Flexibility* of administration machinery to meet changing engineering conditions, by entrusting the formulation of regulatory provisions to a highly qualified enforcing body in each state, whose laison with similar bodies in other states is assured.

(5) *Establishment of a few major principles* as the basic uniform law. These should be directed toward:

(a) Necessity of preservation of gas content of oil pools;

(b) Necessity for the most economic production of the oil by (1) giving the enforcement body power to equitably restrict production in times of over-production, and (2) giving the enforcement body power to refuse license to wasteful production operations, and (3) preserving the producing life of fields of stabilized production; and

(c) Permitting under proper supervision, unit development and operation of single oil pools.

(6) *Adaptability,* by providing for adherence of other states later, or withdrawal of participating states on notice sufficiently long to insure stability for stated periods of the co-ordinated conservation program.

(7) *Protection* of small operators, through spreading the burden of conservation efforts over several states instead of one, relieving the small producing well and the field with stabilized production from undue danger of permanent injury on account of curtailment.

II. The following elements may be considered for inclusion in a compact:

(1) A clause whose subdivisions constitute a short uniform statute which will become, on ratification of the compact, the municipal law of each state and will form the basis of the powers conferred by the compact on the agencies which are to enforce it. These powers might well include as their principal elements:

(a) The granting of permission for co-operative development of a single oil pool by the parties in interest, under a scientific and orderly drilling program;

(b) The granting of permission to the parties in interest in a single pool for voluntary restriction of production from that pool during periods of over-production;

(c) Exercise of the states' police power in the prevention of waste and enforcement of conservation by scientific determined restrictions on open flow gas and oil; and

(d) Requirements that areas of settled production be protected in so far as possible in carrying out of any voluntary or enforced curtailments.

(2) A clause creating an enforcement agency. Its form may either be:

(a) A joint interstate commission composed of members appointed by the adhering states, or

(b) individual commissions of each state acting in cooperation, or

(c) a combination of the two foregoing methods by giving advisory powers to a joint interstate commission, made up of representatives of the state commissions, and enforcement powers to the individual state commissions. Method (c) is preferable, assuming the co-operation of the member states.

(3) A clause defining in general terms the powers of the enforcement body, which should include principally the powers:

Conservation Compact

(a) to enact regulations to apply in detail the principles laid down in the uniform statute prescribed by clause 1, and

(b) to enforce in the courts, against individuals, the terms of the compact and the provisions of the regulations.

(4) A clause reserving to each state the right to enact legislation consistent with the compact for meeting local conditions.

(5) A clause providing for subsequent adherence to the compact by other states if desired.

(6) A clause providing for the exercise of powers which may be conferred by the Federal government and providing for voluntary cooperation with federal authorities.

(7) A clause providing stability of the compact's uniform laws for a given time by requiring stated notice prior to withdrawal of any member and leaving the compact in force as to the remaining members.

(8) A clause inviting the approval of Congress, and possibly inviting the appointment of a Federal representative to sit with the enforcement body, either as a member or as an observer.

III. A compact containing the elements suggested would be valid in each of the following respects:

(1) Its major purpose, conservation, is within the police power of the state;

(2) Uniformity of the municipal law of the producing states presents no legal obstacles;

(3) The specific provisions of the uniform statute proposed might be drawn so as not to conflict with any state constitution:

(a) As to conservation requirements, some existing laws of some producing states are even more stringent than need necessarily be included in the compact's uniform statute;

(b) As to the permissive power granted for orderly development of a single pool. the major purpose, conservation, would not be in conflict with the anti-trust laws of any state, and if it were, modifications of such an anti-trust law for the purpose suggested can conservatively be recommended;

(c) as to the licensing power conferred, exercise should be restricted to production problems and associated problems, in the interest of conservation only. Two things should be completely outside the scope of the proposed compact: price fixing on the hand, and facilitation of monopolies on the other; and

(d) as to the power given to permit voluntary restriction of production in periods of over-production, the permissive power granted by each State would be restricted to agreements affecting that State, and affecting no other phase of the industry than production. The effectiveness of the compact would lie in the concerted action of the States, each acting only in its own territory.

(4) Delegation of police powers to the enforcement agencies created by the compact presents no legal obstacles; it is so vested now in some body under most state laws. As each state is enacting a municipal statute, and entrusting its enforcement to a body created by its own municipal law, no difficulty arises from the fact that in enforcement a similar body in another state has been consulted nor that the laws enacted by the two states happen to be identical. No state is delegating its own police power to another.

(5) The duration of the compact need present no obstacles either legal or political. The compact may specifically reserve the right to each state to withdraw, and the period of notice of withdrawal prescribed may be short enough to enable each of the legislatures to effect a withdrawal within its own life, if desired. The question as to the validity of action by one legislature purporting to bind its successor would thus be eliminated.

(6) Flexibility to meet changing future physical and economic conditions within the limits of the powers defined by the uniform statute is desirable and feasible. Therefore, details should and can be promulgated by the enforcing body, or by the legislatures subject to the compact.

(7) Adaptability, by provision for later adherence by other states than the signatories, with their consent, is desirable and feasible. Congress' consent may be given in advance, when the original compact is approved, or may be given on the adherence of each new state.

(8) Cooperation with the Federal government presents no legal obstacles. Formal signature of approval by a government representative, as in the case of the Colorado River compact, would be desirable but need not bind the United States as a signatory unless Congress chooses to adopt the compact as a Federal law and appoint a Federal representative as observer or member of the enforcing body. The power of the Federal government to enter into a compact with a state has been exercised. There would appear to be no obstacle to the Federal government's designating as a Federal agency a commission which had been empowered by the states' compact as a state agency.

IV. The following procedure is preferable for the formulation of a compact:

(1) an act by each legislature authorizing the governor of its state to appoint a commissioner or commissioners to confer with similar appointees of other states to draft and sign a compact providing uniform legislation for the conservation of oil and gas. The scope of this initial legislation may be broad, as the legislature will have an opportunity to inspect the finished compact in detail before ratifying it;

(2) appointment of a delegate or delegates by the governor;

(3) negotiation of a compact by the state representatives.
The meeting may be presided over by some one designated by the Federal government;

(4) ratification of the compact by the state legislature; and

(5) approval of the compact by Congress.

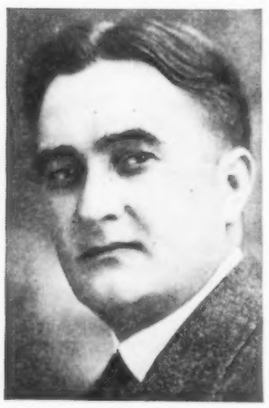
"Economic Situation Demands Immediate Action"

Historical and statistical facts presented to Governors' Oil Relief Conference at Washington

By WIRT FRANKLIN
President, Independent Petroleum Association

WE have been called together today by the governors of the oil producing states for the purpose of working out plans for prompt relief for the present dire distress in the petroleum industry. The situation is so serious as to merit the best thought of the leaders from the several states involved in the solution of our difficulties.

That we may understand the many problems with which we are confronted and the underlying cause of our existing depression, I deem it advisable to review briefly the history of the industry for the past 10 years, the policies and purposes of those in authority and the leaders of the industry, which have had considerable influence in bringing about, if they are not directly responsible for, the present conditions.



WIRT FRANKLIN

Let us go back to the year 1921, when conditions very similar to those of the present were prevalent in the petroleum industry, brought about at that time by vast importations of oil, chiefly from Mexico. Then there was under consideration in the committee of Ways and Means, at that time under the chairmanship of Mr. Fordney, the question of giving protection to this industry by the levying of a tariff on imported crude oil. The committee on Ways and Means of the house voted a tariff on oil in the then pending bill, and President Harding at that time, in a letter to Mr. Fordney requesting that a tariff on oil be omitted from the bill, for the first time declared the government's policy of so-called conservation, which will be more fully analyzed and defined after I have traced its course and effect from that date to the present time. Congress failed to give oil the protection to which it was then entitled, but the Mexican government shortly thereafter levied an export tax upon oil, which, to some extent at least, was an aid to the domestic industry. Thereafter the production of oil in Mexico gradually declined, while exploration and development work was begun in Venezuela, Colombia, and other South American countries.

In 1924, continuing the policy first enunciated by President Harding in 1921, President Coolidge appointed four members of his cabinet as the Federal Oil Conservation Board, with the Secretary of the Interior as chairman. This board held hearings for the purpose of determining the extent of our petroleum reserves. The aid of the American Petroleum Institute was asked and given, and the country was alarmed at the reports emanating from the board and leaders of the petroleum industry that our petroleum reserves were in danger of exhaustion within a few years, and that even our safety as a nation was at stake. This was no new thing, as men prominent in the industry and others had for years from time to time made predictions of the early exhaustion of our oil resources. The rank and file of the producing branch of the business paid little heed to the hearings before the Federal Oil Conservation Board, or to the warnings of those timid souls who prophesied the early demise of the petroleum industry in the United States. They did not believe these predictions, thought them harmless, and did not then foresee the results of their indifference. The major factors in the industry, many of whom held large concessions in Central and South America, participated in the hearings and aided in the dissemination to the people and the officials of the state and federal governments of information tending to convince the country of the early exhaustion of this irreplaceable natural resource, and so crystalize public sentiment in favor of hoarding our supplies, unused, for future generations. For years the press has been filled, to such an extent as to amount to propaganda, with the predictions and forebodings of these prophets of disaster. Whatever merit this so-called conservation policy had at its inception, subsequent developments have conclusively shown that the same was founded upon a false foundation of fact; that the use of the word "conservation" in connection with this policy was not in its true sense; that instead it meant reservation of our supplies in the ground, and the effect has been to mislead the people into believing that we were wasting our petroleum resources, which was far from the truth.

In 1928 it became apparent that there was an over supply of oil being thrown upon the markets of the United States, due to increasing domestic production and increasing imports, chiefly from Venezuela. The American Petroleum Institute created a committee on world production and consumption, the avowed purpose of which was to bring about a curtailment of production in the United States and a curtailment of imports, so as to bring production and imports in balance with consumption. Elaborate plans were formulated early in 1929, were submitted to the Federal Oil Conservation Board, and by that board referred to the attorney general for the purpose of ascertaining whether the plan could be carried out without violation of the anti-trust laws. The attorney general could not promise immunity, and the work of the committee, covering the production of the country as a whole, was discontinued. In lieu thereof committees for curtailment of production were set to work in the various states, under the authority of state laws

"What Big Companies Advised Secretary Wilbur?"

where same existed, and these state committees and subcommittees in the various districts within the states have succeeded to a remarkable degree in reducing the production of oil within the United States. As a corollary of this work and as a part of it, the plan contemplated the curtailment of production in the countries of South America, particularly Venezuela, which, had it succeeded, would have resulted in a reduction of imports of crude oil and refined products into the United States.

Conference Sought

In the early part of 1929 M. L. Requa, reported at the time to be acting in behalf of President Hoover, called upon the governors of the several oil-producing states to enlist their aid in holding a conference of the petroleum industry, and later called such a conference to meet at Colorado Springs, Colorado, on June 10, 1929. This conference was attended by several of the governors and also by a large number of delegates from the various oil-producing states, representing all branches of the industry. The conference was opened by Mr. Requa, with a statement of the aims thereof. Dr. Wilbur, Secretary of the Interior, again announced the conservation policies of the Federal Oil Conservation Board, and Dr. George Otis Smith, director of the United States Geological Survey, among other things stated, in substance, that the next 10 years would in all probability see the exhaustion of our petroleum reserves to the point of endangering national defense. The doctrine of conservation was again expounded, and the delegates representing the various states were asked to form a compact among the states producing oil, which compact, when adopted and approved by congress, would become the supreme law of the land; a commission would be appointed under the authority of the compact, with power to regulate and control the production of oil, to determine how much oil should be produced within the United States, and to allocate that production among the several oil producing states.

When it became apparent that the real purpose of the meeting was not conservation in its real and accepted sense, but that the purpose was, by degrees and from time to time, to reduce the production of oil in the United States, and reserve our supplies in the ground for an indefinite period to come, and at the same time import our requirements in large part from foreign countries, the Colorado Springs conference adjourned, without having accomplished anything whatever toward the consummation of the purpose for which it was called.

However, this conference had far-reaching effects. It revealed, in all its hideousness, to the rank and file of the petroleum industry the true intent and purposes of those who had been fostering and promoting the so-called conservation program, to shut in domestic production, to stop development, to reserve our oil supplies in the ground, to be developed and used after the foreign supplies have been exhausted, and to turn the markets for petroleum in the United States (approximately 70 per cent of the markets of the world) over to a few large companies engaged in exploiting the petroleum reserves of South America and in importing the production thereof into the United States. If there has been any doubt as to these intents and purposes in the past, all doubt must now be dispelled, since under date of January 6, 1931, Secretary Wilbur, after having received an invitation from the governors of Oklahoma and Kansas to participate in this conference, gave to the Associated Press an interview declaring himself against a tariff on oil, and saying, if he is correctly quoted by the press: "The chief result would be that the big companies, which now have many wells shut in and not in operation, would open them up, adding to the production. Overproduction is the basic ill of the industry."

It might be pertinent at this time to inquire what big companies have advised Secretary Wilbur in advance as to how they would defeat any beneficial results from a tariff on oil. The Honorable Secretary also said: "In the future the country with the oil will dominate civilization. In it will be centered the wealth. America must conserve her supply. If we waste our oil reserves now, we will pay foreign countries through the nose for every barrel we import later. If I were the landlord of this country, I would see that we used as much imported oil as possible, and let the other fellow waste his reserves."

The last quoted sentence is a full and complete admission of the purposes of those promoting the so-called conservation movement—to turn over to four companies, chiefly engaged in importing oil, the entire markets of the United States even though it might mean the destruction of one of the greatest industries in the United States, the impoverishment of a section of the United States and of the people thereof, almost if not quite one-third the area of the entire country, with a population of some 22,000,000 of people, and a civilization builded upon the oil industry.

In speaking thus, does the Honorable Secretary present to the public the views of the administration, or is he simply holding fast to ideas and convictions acquired some years ago under circumstances which might then have excused the views, but which in the light of subsequent events are indeed archaic?

Conference Fails

The conference at Colorado Springs, having failed to bring forth a compact under which production could be controlled, the efforts, by voluntary cooperation and in some states under the provisions of state law, to curtail production, proceeded with remarkable success. Indeed, the figures are startling. We find that for the week ending August 24, 1929, the production of crude oil in the United States averaged 2,975,435 barrels per day, and for the week ending January 3, 1931, 2,082,100 barrels per day, or a curtailment in production in that period, brought about by the cooperation on the part of small and large producers alike throughout the country, of 893,335 barrels daily. We will produce in the United States this year approximately 100,000,000 barrels of oil less than we did in the year 1929, and while we have been reducing the domestic production 100,000,000 barrels, the importers have, during 1930, brought into the United States and thrown upon our markets, duty free, more than 100,000,000 barrels of crude oil and refined products. In fact, the imports of gasoline during the first nine months of 1930 increased 125 per cent over the same period of 1929. The report of the committee on economics of the American Petroleum Institute at its Chicago meeting, November 10, 1930, shows that each 5,000,000 barrels of gasoline imported would displace, for the six months ending March 31, 1931, 114,000 barrels daily of domestic production, while the report of the economics committee appointed by Secretary Wilbur to forecast the demand for petroleum products and ascertain and allocate oil produc-

(Continued on page 56)

CLAUDE F. DALLY

East Texas Cross Offers Interesting Study

EAST Texas has held the interest of the oil industry, at spasmodic intervals, since the discovery of shallow oil at Corsicana. Since the recent discoveries in Rusk and Gregg Counties have been made it appears that East Texas has come into its own and will probably hold the continued interest of the oil operator for a long time to come. These new wells open up a vast area which has heretofore held little attraction simply because it has been neglected by most of those engaged in the oil business.

This rejuvenation of the East Texas activity follows the addition of the Van field to the fast growing list of Woodbine sand pools. The opening of this pool has challenged not only the oil operator but the geologist as well, and as a consequence East Texas has been mapped on the surface and sub-surface; it has been core-drilled, cross-sectioned, "shot" with the seismograph and worked with the torsion balance and magnetometer. No doubt, the ever-present "doodle-bug" has also had his work to do in the area.

Geologically speaking, the East Texas basin is an embayment reaching up from the present Gulf of Mexico into Northeastern Texas, where it curves eastward into Louisiana and Arkansas. The maximum depth of this embayment is attained in the Sigsbee Deep, a part of the Gulf of Mexico, where the greatest depth measured is more than five miles below sea level. The particular part of the embayment, or basin, with which the oil man is more particularly concerned, lies east of the Mexia fault zone (trending northwestward through Falls, Limestone, Navarro, Henderson, Kaufman, Hunt, thence more easterly through Hopkins and Franklin Counties) and west of the Texas-Louisiana line. The geologic features bounding this basin are: the Mexia fault zone on the west and north, the Sabine uplift on the east, and the south really has no boundary as yet since it is not known just what the possibilities are in the lower horizons which have been reached in wells further to the north.

Producing Sand Age Debated

There has been a great deal of discussion among geologists as to the age of the producing sand in the recent wells in Rusk and Gregg Counties. The Texas geologists say that it is Woodbine in age and most of the Louisiana geologists contend that it is Tokio in age. This question can be definitely settled only by a thorough study of stratigraphic cross-sections and correlations with the aid of all the data obtainable pertaining to the megascopic and microscopic fauna from the formation itself. The cross-section submitted herewith presents one phase of the stratigraphic relationship of the Woodbine sand to the producing horizons in the Joiner and Bateman areas. This particular line of cross section was chosen because of its proximity to the Van field and also because it includes several of the deepest wells in the basin.

The main general features to be noted in this stratigraphic cross section are the eastward thickening of the Pecan Gap chalk across the basin and the eastward thinning of the Austin chalk and the Woodbine sand. The wells chosen for this section are, in order from west to east: Transcontinental Oil Company's Rice 1, Gurley & Lee's Andrews 1, Century Oil Company's Stuart 1, Pure Oil Company's Tunnell 3, East Texas Oil Company's Kedane (or People's National Bank) 1, Deep Rock Oil Company's Bowdoin 1, Amerada Petroleum Corporation's Christian 1, Owen & Sloan's Starnes 1, Bateman et al's Crim 1, Hunt et al's Bradford 1, and Sabine Petroleum Company's Simmons (or Morgan) 1.

Now let us analyze this cross section and see what general deductions can be made from it. These deductions can best be shown in tabulated form so we shall list the wells in order from west to east showing the intervals between markers as indicated graphically in the illustration.

Company—	Farm	Well	Pecan Gap Thickness	Base P. G. to Top Austin	Austin Thickness	Eagleford Thickness	Top Woodbine to top red beds
Transcontinental	Rice	1	236	540	502	454	266
Gurley & Lee	Andrews	1	170	660	610	did not reach Woodbine	
Century Oil	Stuart	1	85 or 230	825 or 955	320	383	no red to T.D.
Pure Oil	Tunnel	3	165	635	195	130	150
East Texas Oil	Kadane	1	160	no Austin to T.D.			
Deep Rock Oil	Bowdoin	1	422	no Austin to T.D.			
Amerada Pet.	Christian	1	428	952	100	135	190
Owen & Sloan	Starnes	1	300	732	118	?	30
Bateman et al	Crim	1	440	440	148	?	...
Hunt et al	Bradford	1	450	422	98	?	39
Sabine Pet.	Simmons	1	725	230	79	...	...

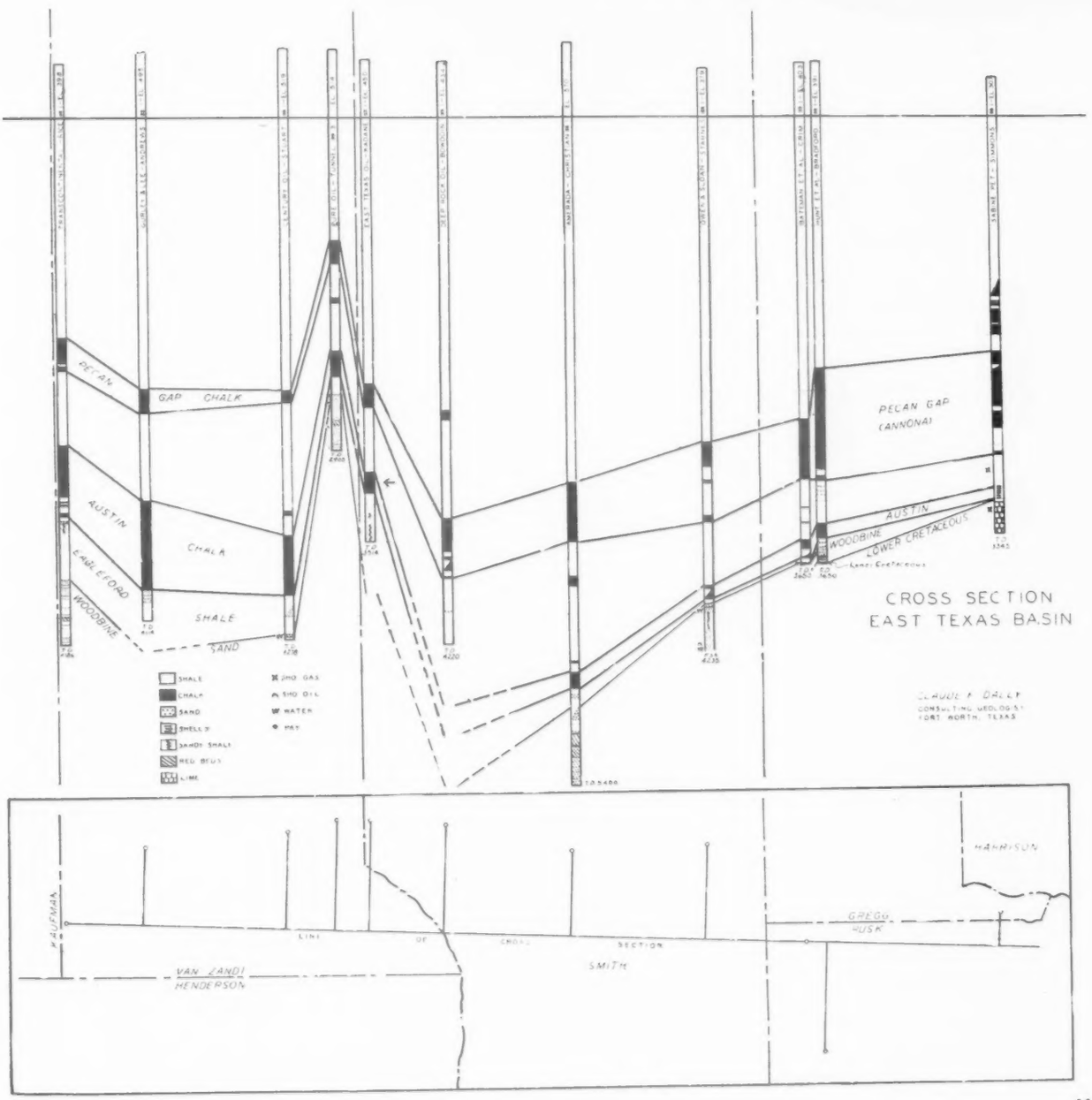
It should be mentioned here that the chalk encountered at 3011 feet in East Texas Oil Company's Kadane 1 is definitely not the Austin as has been commonly believed. This has been learned since the cross-section was drawn and the arrow on the drawing designates this chalk. This bastard chalk has been encountered in other wells. It is shown at 3350 feet in Century Oil Company's Stuart 1, at 1822 feet in Pure Oil Company's Tunnel 3 and again at 3885 feet in Amerada Petroleum Corporation's Christian 1. It is the same chalk topped at 3280 feet in Owen & Sloan's Starnes 1. It is probably lower Taylor in age although the paleontological evidence of this is not available at this time.

The general, but uneven, eastward thickening of the Pecan

Section

By CLAUDE F. DALLY
Consulting Geologist

Bateman et al's Rusk County producer



Gap chalk is the first noticeable feature shown by the figures. Considering the structural position of the wells in the cross-section the general deduction may be made that an excessive thickness of Pecan Gap is encountered in structurally low wells and, conversely, a thin section in very high wells.

The interval between the base of the Pecan Gap and the top of the Austin is almost twice as great in the bottom of the basin as on the western flank but this great thickness thins very rapidly to the eastward. The variations of this interval seem to be more general in character than the Pecan Gap thickness and not so much affected by local structural conditions.

The eastward thinning of the Austin chalk occurs at a much more constant rate than either the Pecan Gap thickening or the thinning of the Pecan Gap-Austin interval. It likewise appears to be little affected by local structure.

The Eagleford shale thins as we progress eastward across the basin and apparently at an even more constant rate than any of the higher beds. We naturally find it abnormally thin over the Van field but structural conditions are abnormal here and little can be deduced from these conditions which will apply on any other basin structures, with the possible exception of the Blackfoot area in northern Anderson County and the interior salt domes of the basin which are not considered here.

The interval between the top of the Woodbine and the red Woodbine is apparently irregular but was taken into consideration here because it will probably, in final analysis, be one of the factors in the solution of the Woodbine-Tokio question. One thing should be remembered by all operators—no well should be abandoned (unless known to be structurally low) until this zone of red Woodbine shales has been passed through. The reason for this is that the upper Woodbine above this red zone is nearly always bentonitic, i.e., the cementing material is clay which occupies the pore space in the sand and thus precludes the possibility of its carrying oil in commercial quantities unless some very unusual structural conditions, such as very steeply dipping beds or local faulting, are present, in which case the oil may be forced into the sand.

Another interval, and one of the most important, should be mentioned here and that is the interval between the base of the Austin and the top of the lower Cretaceous. Although the exact thickness of this interval is not known in the basin proper it is certain that it is in excess of 500 feet. In the Rusk-Gregg area and elsewhere along the flanks and on the top of the Sabine uplift, this interval becomes zero and we find the Austin in direct contact with the lower Cretaceous beds. This is the case in The Texas Company's Goodwin 1, near the town of Henderson, as well as other wells which have been drilled on the Sabine uplift. It will be seen from this that the Woodbine and the Eagleford completely disappear to the eastward and it is very probable that the Austin chalk does likewise. It is very doubtful whether there is any Eagleford present in the Joiner and Bateman areas and it is certain that the Woodbine pinches out between there and the Sabine Petroleum Company's Simmons 1, in southeastern Gregg County. It is possible that this well had a very thin streak of the Woodbine since a show of gas was logged in this horizon. The well was drilled 170 feet into the lower Cretaceous lime.

Previous Discussions

Now let us see what previous publications have to offer on the Tokio-Woodbine controversy. A. F. Grider, in his paper, "Pine Island Deep Sands, Caddo Parish, Louisiana," p. 170, Vol. II, Structure of Typical American Oil Fields (a symposium published and for sale by the American Association of Petroleum Geologists) places the Tokio ("Woodbine" sand) in the basal lower Cretaceous, thus;

(partial section)

Upper Cretaceous "Blossom" sand .....100′
Brownstown 200
Tokio ("Woodbine" sand) 50
Unconformity

Lower Cretaceous.

Although the Tokio ("Woodbine") is listed in this type section of the Pine Island field as Upper Cretaceous he indicates in the text that at least a part of it may be of Lower Cretaceous age, this statement being based on examination of cuttings from Dixie Oil Company's Dillon 65, Section 13-21n-15w, by A. L. Selig.

M. Grace Wilmarth of the United States Geological Survey, in a correlation chart of geologic units of Texas (issued September 1, 1930), places the Brownstown marl as upper Austin in age but does not mention the Tokio, as it does not belong in Texas nomenclature.

Corbin D. Fletcher's paper, "Structure of the Caddo Field, Caddo Parish, Louisiana," (p. 188, Vol. II, Structure of Typical American Oil Fields), quotes a section by C. H. Dane et al who place the Brownstown and the Tokio near the base of the Upper Cretaceous and place the "Woodbine" at the base with this notation, "(age questionable) 2. On p. 190, in Table II, Fletcher states that the 'Woodbine' is probably composed of three horizons in the Upper Cretaceous and Comanche (or Lower Cretaceous). He further states, on pp. 192 and 193, that although Stephenson has correlated the Woodbine of Arkansas with the Woodbine of Texas on the basis of lithology and stratigraphic position he (Fletcher) does not believe there is anything in the so-called "Woodbine" of Caddo which can be definitely correlated with the Woodbine of Arkansas. Fletcher says that the black, micaceous shale immediately above the first sand is definitely Tokio in age but no fossils have been found in the sand itself, hence its age is indeterminate.

W. C. Spooner, pp. 200 to 208, "Homer Oil Field, Claiborne Parish, Louisiana," same publication, assigns the Brownstown to the Taylor group and the Tokio to the Austin. He places the Woodbine below this as doubtfully present in the lower 30 feet of beds. He states in the text, however, that the Woodbine has not been recognized in the Homer field.

In order to obtain a clear vision of the situation let us tabulate the results of this compilation and see where we stand:

Formation	Wilmarth	Crider		Spooner	Fletcher (Dane)
Taylor				Brownstown	
Austin	Brownstown	Brownstown		Tokio	
Eagleford					Brownstown Tokio
Woodbine	Woodbine	Woodbine (Caddo Field)		Woodbine	"Woodbine" (age questionable)
LOWER CRETACEOUS			Tokio ("Woodbine") in Pine Island		

(*Continued on page 73*)

How Much Gas With A Barrel of Oil?

By HARRY PENNINGTON
Mechanical Engineer, San Antonio, Texas

THE recent order of the Texas Railroad Commission for a survey of gas-oil ratios throughout Texas oil fields, is without doubt, for the purpose of setting up a premise on which to base regulatory measures for setting up control over the quantity of gas produced with each barrel of oil. In the writer's modest opinion, this movement on the part of state authority is most constructive, and it may extend further, than any yet considered with relation to the utilization of our natural resources.

For, although gas and oil are the natural resources sought for reduction to possession, the energy stored in formation gas by natural forces, is a collateral resource controlling recovery percentages of oil. Without the energy of formation gas—that is gas contained in a formation with oil—recovery percentages would be very low; and where energy is used intelligently and skilfully, recoveries will be high. But, where this energy is misdirected, we may expect to find low recovery percentages, for, looking back over the older fields of the country, where oil was produced with indiscriminate open flow, it is common knowledge that there has been left in such sands, by far the greater portion of their original oil content.

State and federal outhority, and the advanced thought of progressive producers, are feeling around for an answer to the query: "How many cubic feet of gas should be produced with a barrel of oil?"

When stated thus, plain so, this question can be answered about as accurately as the proverbial, "How long is a piece of string?" Both questions require a measuring stick of some kind; this article attempts a standard of measurement of gas quantity minima, although the writer does not expect to attain such a desideratum at a single stroke.

"Our field is different," so often heard, applies only to numerical factors, such as pressure, velocity, quantity—never to natural laws controlling these, for principles of gas control may be laid down upon any well of any field.

AS a general proposition, we are not able to measure directly the work done in driving oil laterally into a well bore, nor are we able to measure pressures save in a well bore, and in order to deal with known forces, this article remains within the well bore, where we can measure pressures, quantities, velocities, derive from them other factors necessary, and from them secure considerable information as to economic rates of production from a given sand through a well bore in that sand.

We know that considerable work is required to drive oil through the pores of an oil sand, which work is all dissipated in friction, entering the oil and gas as heat, the total quantity of which is large. But in any case, the reduction of pressure from the outermost influence circle of a well to the well bore, is controlled by well bore pressure at its bottom, and when we control bottom pressure, we also control the pressures within an influence circle.

Thus, work done in driving oil to a well bore is eliminated from these calculations as being without our present scope of exact calculable information.

The work to be done then consists in lifting oil from the well bore opposite formation, to the ground surface, which is a very simple matter of calculation. For facility, the writer uses a curve, showing the foot pounds necessary for raising one barrel of water through heights up to 9000 feet. Using the specific gravity of the oil as a multiplier for reduction, the net work in foot pounds is obtained from this curve.

The total amount of work involved in lifting oil from formation to the surface, may be divided correctly into two phases, namely:

Work A. Forcing oil up to the fluid working level while the well is producing.

Work B. Elevating oil from the fluid working level to the surface.

Fundamentally, the static head of a formation producing liquid therefrom, is the height of fluid level above its source when at rest—that is, when the well is not in production—whether the level thus obtained is above the ground surface, as in some instances, or whether the level is below ground as in most instances.

When the well is producing, the static level is depressed to a working fluid level, and the difference between static and working levels is the depression. With the quantity of production known, together with the depression of static to working level, and expressed in suitable terms, we have a depression factor, which is most important in any well, usually expressed in oil wells in terms of barrels per day per linear foot of depression, and termed *Depression Factor.*

For example, in a 3400-foot well, with a static formation pressure of 1200 pounds, with 34 Be. oil, 0.855 specific gravity, the static level of fluid is 3247 feet above the source when at rest in the casing. When producing say 1000 barrels per day, if the fluid level is depressed 500 feet, as indicated by casing pressure with no fluid column therein above formation, the *depression factor* is two barrels of oil per day per foot of depression.

In such a well, the work to be done then, with gas alone as the source of energy, consists in elevating the oil to the surface from the working level—not from the formation to the surface.

In the foregoing well, the lift effected by gas alone is from 2747 feet above formation up to the surface, or 653 feet.

Then, Work A consists of an elevation of the oil through a vertical height of 2747 feet, and Work B 653 feet.

Source of Energy

The primary source of energy found in an oil and gas bearing formation is from the potential energy of ground

waters that originally effected the accumulation of the oil and gas—potential energy of ground waters being that due to elevation, obtained by lowering the water and allowing it to do the work of gas compression while descending. The compression of gas by the natural forces of ground water has converted some of the potential energy of ground water into other forms, and stored the same in formation gas. Originally from ground waters, there is no reason to assume that further energy is not derived from the same source, as when oil and gas are moved, water follows them into the sand, during the productive life of a field.

We may therefore divide the source of energy utilized in producing oil and gas into two phases:

Source A: That energy which may be derived from the potentials of surrounding waters solely, due to these waters continually acting to drive oil and gas toward the point of lower pressure of a sand, that is, to a well bore and up the same.

Source B: That energy which may be derived from formation gas, free from solution, by expansion while doing work.

The foregoing distinction as between sources of energy is quite necessary in accounting for the elevation of oil continually while oil is being produced, up to the working fluid level, and in separating this from the energy utilized in elevating oil from the working level up to the ground surface.

In the above well, for exemplification, with a working fluid level 2747 feet above formation, the work of lifting oil through 2747 feet may be accomplished through utilization of Energy A, as above, provided that in so doing, production is at such rate as will allow surrounding water to follow up oil and gas as rapidly as the latter are withdrawn, without lowering formation pressure; and the work of lifting oil through the remaining 653 feet to the surface is accomplished solely through utilization of the intrinsic gas energy.

In most cases, though, potential energy of surrounding waters is not thus utilized, for oil and gas are usually withdrawn at a greater rate than can be followed up by water.

In pressure sustaining operations, through injection of gas into formation, before pressure—the original pressure—in the same has been lowered, the effect of water follow-up is obtained by sustaining pressure with gas, preventing the encroachment of water, under definite producing conditions—a matter covered more fully below.

Availability of Energy A:

The flow of oil through a sand to a well bore, as outlined in earlier papers on the subject, written for this journal, is a measure of pressure differential in an oil sand between the outer influence circle of the well, and the well bore, coupled with resistance to flow through the sand. A well at rest with fluid level at its static level in the casing, has no pressure differential and further oil therefore is not driven to the well through the sand.

But, when the static fluid level is depressed, by continually removing oil from the casing by any means, and the working fluid level is reached for any given rate of production, the formation pressure differential reaches a point where inflow to the well may be sustained for a time at constant figure for a constant differential in formation pressure. Therefore, a pressure differential in an oil sand is necessarily established for the well to produce. These are matters that have been the subject of direct measurement by the writer in both oil and water wells.

As the inflow of fluid to a well sets up frictional resistance proportional to the square of velocity, it follows that increased production, which increases fluid flow velocity, utilizes energy in a ratio proportional to the square of velocity, and not in the direct proportion of production, for overcoming frictional resistance, with the potential energy being stored in the oil as the same is elevated.

The potential energy then in the well bore, is a constant figure for each foot of elevation of each barrel of oil, while the energy dissipated as friction increases as the square of fluid flow velocity. This distinction is quite necessary.

When production is increased to such point as the energy required for elevating oil to the working level exceeds that which may be derived from Source A, then the remaining required energy is derived directly from formation gas expanding within the formation, and doing the work of elevating oil to the working level, while the gas is still in the formation. This, as pictured in THE OIL WEEKLY of August 18, 1923, accounts for some of the refrigerating effect observed in many oil and gas sands.

Where the follow up of water, and the delivery of some of its potential energy into the oil and gas of the formation, is equal to the potential energy taken out by elevation of oil to the working level, naturally, there will be no change of formation temperature, which accounts for other cases where there is no reduction in formation temperature.

We then have as a corollary: production of oil in excess of that which is followed up by water, without an equal energy exchange therebetween, sets up lowering formation pressures. This may be avoided, of course, by replacing the difference between potential energy delivered into the oil rising in the casing, and that delivered into the remaining oil in the sand from surrounding waters, by energy contained in injected gas, for gas injection is nothing more, insofar as energy is concerned, than delivering power into an oil and gas formation.

If the rate of water follow-up, with a given rate of production, is such that pressure differential in the formation increases,—that is, the formation pressure lowers, around the well within its influence circle, which usually occurs—then the advantages of potential energy of surrounding waters is not utilized. But, if production is fixed at such rate that formation pressure differential does not increase—that is, formation pressure does not decline—then the effect of energy potentials of surrounding waters arrests pressure decline.

Stated more fully, if the rate of production is such that formation pressure does not decline, then the potential energy derived from surrounding waters is equal to that potential energy taken from the formation in the oil being elevated to the surface. The writer trusts this is clear as applying to the liquids, oil and water. These are modified by gas, which will be considered.

Then, wells are invariably elevated in their requirement of energy from formation gas, due to subsiding working levels, which adds to the lift above the working fluid level to the surface.

Pressure Conservation Important

It is now clear that conservation of formation pressure is equally as important as conservation of the gas of formation that buffers in sustaining pressure.

The foregoing is a statement of the principles of the water drive, utilizing surrounding waters, however, instead of introduced water as a means of securing the drive.

It may be argued that all fields do not show water follow-up, or a natural water drive. Temporarily, or for years, this may be true, due to a more rapid withdrawal of oil and gas than can be replaced by a slower migration of water through a low porosity sand, and where sand conditions, and relatively low formation water pressure exist that

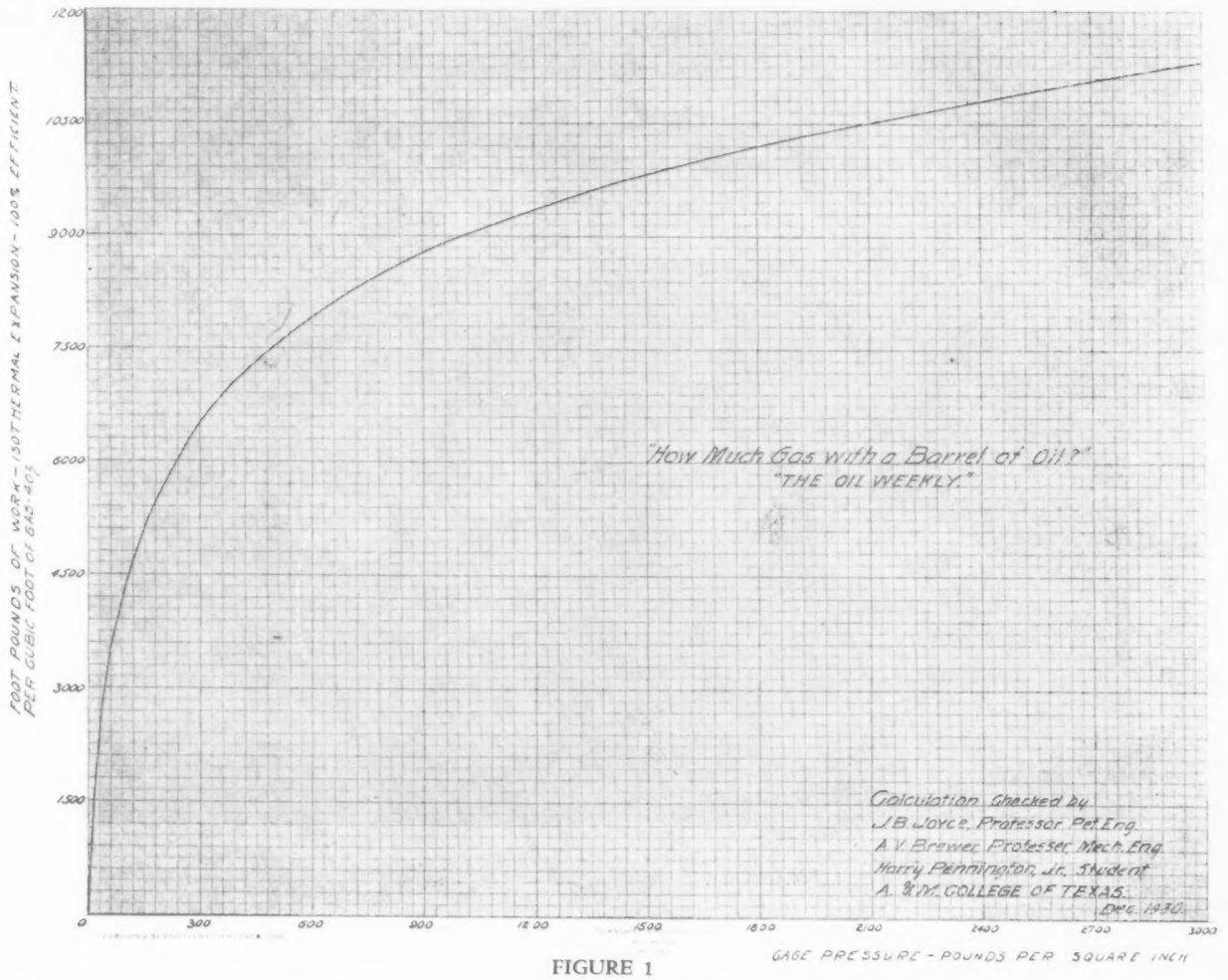


FIGURE 1

prevent the movement of water. For instance, the rate of replenishment of water, by percolation downward, or by migration laterally, may be limited by the source of the water, or by faulting and other conditions, that prevent rapid water follow-up. But, conceding that an oil and gas accumulation is primarily through the action of underground waters in selectively depositing the lighter fluids beneath an impermeable trap, we cannot escape the assumption that there are definite, ascertainable production rates of wells in a given sand, beyond which the effect of natural forces found associated with oil below ground, and gas, is largely lost.

Then, in most cases in the past, oil and gas have been produced too rapidly for a full utilization of all these natural sources of energy found associated with oil and gas below ground.

In wells where fluids can migrate easily through crevices and fissures to a well, follow-up of water is an immediate thing compared with wells where fluids must flow from pore space to pore space of a sand to the well bore. In this fractured type of formation — and there are many — the casing may show no pressure whatever at the surface, due to a water column or a fluid column therein. But, using the casing fluid column as a gauge of formation pressure, the latter is easily obtainable, nevertheless.

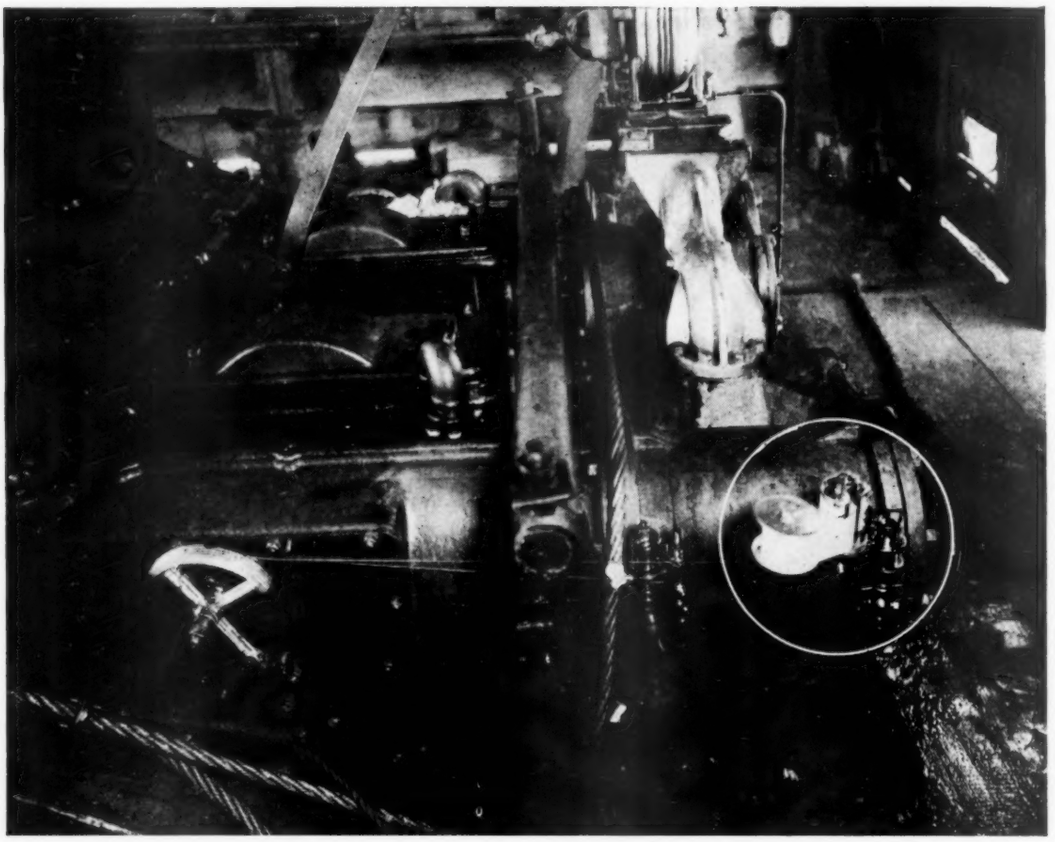
When a well is flowed to such capacity as admits water along with oil, with both flowing out at the surface, we have the extreme case of water follow-up, which is usually mitigated by reducing the flow, save in a few instances where the water may be exhausted after a time.

Availability of Energy B:

The writer believes it has been made clear that conservative production sustains formation pressure, thereby securing the advantages of potential energy of surrounding and adjacent underground waters. In direct measure with the utilization of this source of energy, the necessity for additional energy from formation gas is reduced, for if the working fluid level of an oil well is sustained, the duty of lifting oil from working level to the surface remains the same for each barrel; conversely, as the working level depresses, with reduction in formation pressure, the energy needed from gas for elevating oil from working level to the surface increases directly therewith.

While it is true that gas entering, in solution, with oil may evolve in the flow line, progressively up the bore thereof, beginning at the point of inflow, and expand in the flow line due to a shortening pressure column above a given particle of gas, reducing pressure progressively thereon, and that such gas therefore begins doing work immediately upon evolving from oil, and that free gas, entering the well as such does the same, casing pressure indicates the point up to which oil is elevated by formation pressure. With all of the oil continually so elevated to working fluid level by

(*Continued on page 52*)



Recording instruments for determining the power inside the cylinders of the engine. Similar instruments are mounted on both cylinders

Test of Steam Rotary Drilling Equipment

ONE of the major projects of the Mid-Continent section of the American Society of Mechanical Engineers is the test of steam equipment for rotary drilled oil wells which is being conducted on Indian Territory Illuminating Oil Company's Lemmon 3, SW SW SE 11-11-3W, Oklahoma City field. The test is being conducted on the boilers and prime movers to determine the overall efficiency and power requirements for the various drilling operations. With these data available the oil industry will have a definite basis with which to work toward more economical drilling with steam power. Ultimately the A. S. M. E. hopes to obtain similar information for all types of prime movers for this service.

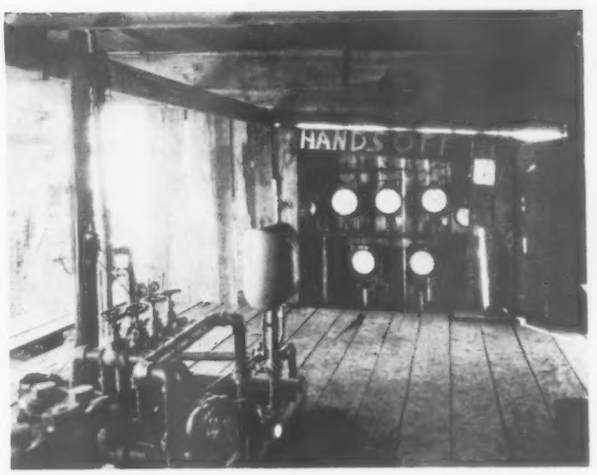
This test comes under the Production Committee, the general chairman of which is D. L. Trax, with R. M. Carr, chairman of the steam sub-committee. The work of organizing and conducting the test has been done by W. H. Carson, director of the school of mechanical engineering, University of Oklahoma, assisted by the faculty and students of the mechanical engineering school. The engineers of the company and Schoenfeld & Hunter Contracting Company have cooperated to the fullest extent. In setting up equipment for a test of this kind there are many unforeseen things which will arise, but with an interested contractor and willing crews, most of the unforseen obstacles can be overcome in a short time. The testing apparatus has been so arranged that it does not interfere with the regular routine of the crews in any of their operations.

The apparatus used is as follows: a master water meter for metering all water going to the location; a gas meter; a water meter in the feed-water line; a steam flow meter to the auxiliary equipment, such as feedwater pumps and generator turbine; two steam flow meters in the line to the drilling engine; one steam flow meter in the line to the mud pumps; recording steam pressure gages; separating and throttling calorimeters; Orsat apparatus; four continuous-diagram steam-engine indicators; two non-continuous-diagram steam indicators; four stroke counters; one tachometer; stop watches, and other miscellaneous equipment. All of the equipment for measuring the flow of steam, water, gas, as well as the tachometer and pressure gages, are of the recording type. The indicators and steam

calorimeters are the only equipment that will require personal attention when operating.

Use Two Flow Meters

It will be noted that two flow meters are used in the line to the drilling engine. These meters are placed in series, one of them having a 24-hour clock, the second a two-hour clock. The second meter is used during the operation of pulling the drill pipe out of the hole. During this time the steam demand for the drilling engine varies from zero to a maximum over a short interval of time. When this is recorded on the 24-hour clock the entire operation will show up as a complete blur of ink, but the record on the chart of the two-hour clock will be spread out so that definite information can be determined from it.

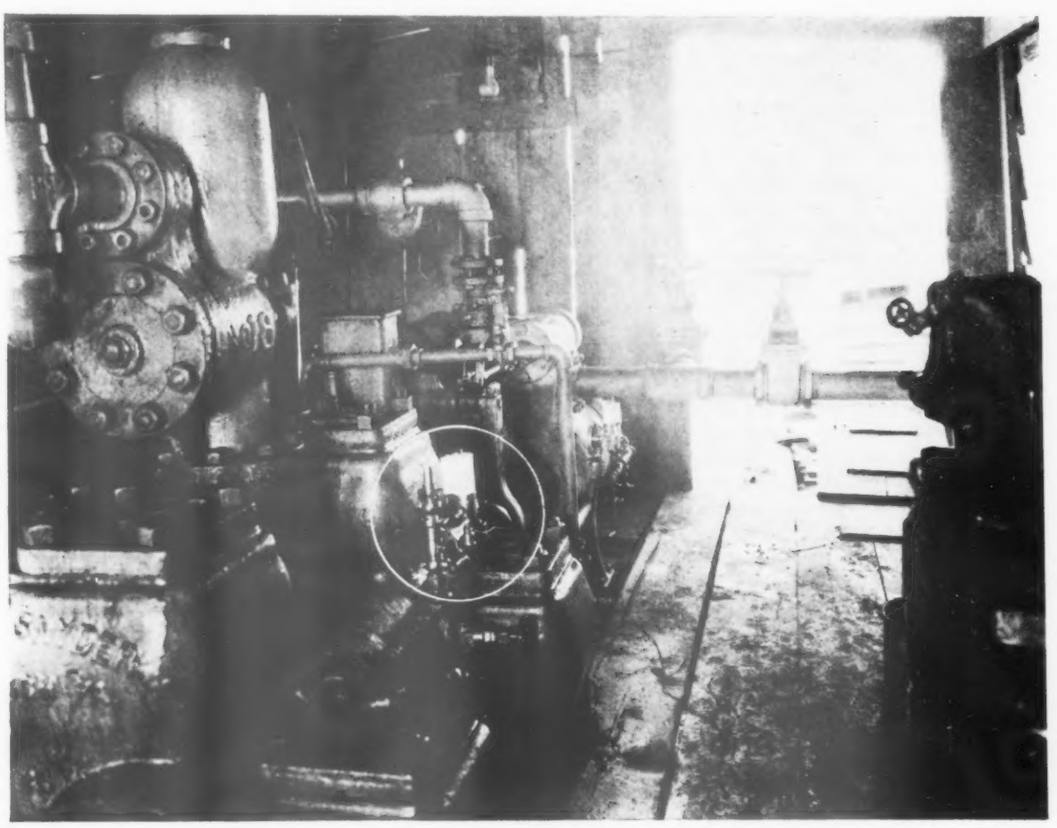


Instrument board inside the boiler house

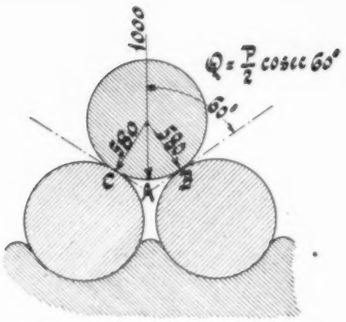
The manufacturers of the various types of apparatus that are on this test have been liberal in loaning equipment.

Indicator cards are being taken on the drilling engine and the mud pumps. This includes both the steam and mud cylinders on the pump. Cards are also taken when raising the drill pipe out of the hole. These are taken with a continuous diagram type indicator. A log of the well is being kept the power requirements to drill through the various formations will be determined. Another interesting comparison will be the horsepower required to lift the drill pipe and bit through the various formations as compared with the theoretical horsepower necessary to lift a weight equivalent to the drill pipe and bit. The crookedness of the hole will also have a bearing on the horsepower requirement, which will be plotted on the depth scale as well as the formations encountered.

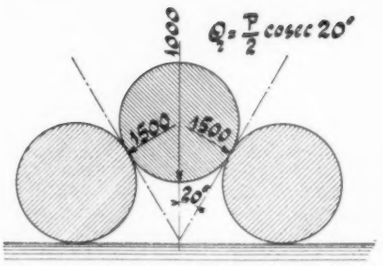
Some very interesting results are being obtained from the mud pumps, since simultaneous readings are being taken both on the steam and mud end. This is the first time that cards have been taken on the mud end when the pump was actually in operation in the field. With the indicating and recording pressure gage connected to the mud line on the derrick floor, comparative pressure drops are being determined. An attempt is also being made to measure the quality of fluid entering the pump. This is being worked out at the writing. The principle used is the Pitot tube method, and the preliminary results are checking satisfactorily with what might be expected of a pump with a given speed and stroke.



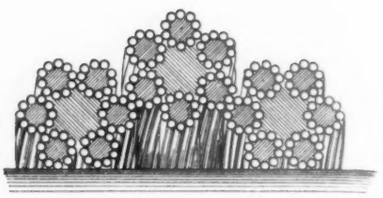
Continuous diagram indicators on both ends of the pump



First layer correctly spaced on grooved drum



First layer with larger spaces on a straight drum



Second layer at the moment before reaching straight drum

Proper Winding Prolongs Life of Drilling Cable

By O. DUDA
Chief Engineer, American Well & Prospecting Company

IN the drilling of oil wells by the regular rotary system the drilling cable is one of the important parts of it, which will be discussed in the following:

There are divergent opinions on the form of the cable drum of the draw works as to what kind, a grooved or a plain surfaced one, should be used for a longer life of the cable to a better advantage.

The cable strung on a plain drum will flatten on its contact with the drum, more or less according to the stress under which it is working. We know that any distortion of the cable contributes to consumption of its life. The cable strung on a grooved drum is protected from this distortion up to almost half the section of it, and therefore so much of the consumption is eliminated.

The length of the cable from crown block to the drum can be set into swinging motion by any source of disturbance, such as wind, vibration of the derrick, or motion of the drum. It is admitted that the swinging of the cable is not desirable, and many attempts have been made to counteract the injurious tendency of the swinging cable in the procedure of winding it up on the drum. The reduction of this swinging action by the hydraulically actuated rollers just above the drum, prevents the jumping forward of the cable on the drum, but does not assist in properly laying the cable on the drum in the desirable helically correct spiral with a slight open space between the layers, but most layers are by means of retarding action of those hydraulical rollers laid too close, the sides of the cable coming in contact before contact with drum. Without any provision to reduce the swinging of the cable, in winding, the cable in places will jump forward and leave spaces between the layers.

For the second layer on top of the first one it is of eminent importance that the first layer be properly laid. The second layer has to lay alternately from directly on top of the first cable to exactly between the two cables of the first winding. In other words, the helix of the first is of right hand, while the second winding necessarily must be of left hand, and the windings have to cross each other at each revolution of the drum.

From this can be concluded that where the cable layers on the first winding are apart, but the distance is still less than the cable diameter, the second layer cable will come into a wedging action, endeavoring to reach the drum, forcing the first layer cables to slide longitudinally on the plain drum, and there is the instance where the cable meets its most disastrous strain. It is a wedging action producing an immense pressure against the sides of the cable. The accompanying drawings 2 and 3 illustrate the pressure on cables in different positions to each other for each one thousand pounds pressure of the second layer in direction A on the sides of the two contacts B and C, this varying with the angle of the wedge. This is only a part of the injury done to the cable, and as the second layer cable has to slide down toward the drum on the sides of the two adjoining first layer cables, and those contacts consist of the corrugation formed by the wires of one cable touching the wires of the other cable, almost parallel, the tendency of this strain is to displace the wires radially to the section of the cable, resulting in pulling some of the wires or wire strands out of its position in regard to its section, or, if the strain is greater, wires or whole sections of wires are broken. Any broken wire coming then in pressure contact again with another wire will act on it similar to a chisel, shearing off the next wire. The strain on the cable can be visualized by comparison of the drum with the action of a rope on a cathead: the end of cable from crown block to drum in place of the end of rope in hand of the operator, and the end of cable fixed to the drum flange in place of the end of rope going out to the wrench in unscrewing a joint of pipe.

That the strain in the cable in the first layer is always greater than in the second is not always admitted. Nevertheless, it is there and this is in proportion to the static weight suspended on the cable to the intermittently acting dynamic weight of the traveling block, swivel and drill pipe in motion. Therefore, the properly spaced first layer should be preferred, which can be attained only by a correctly grooved cable drum.

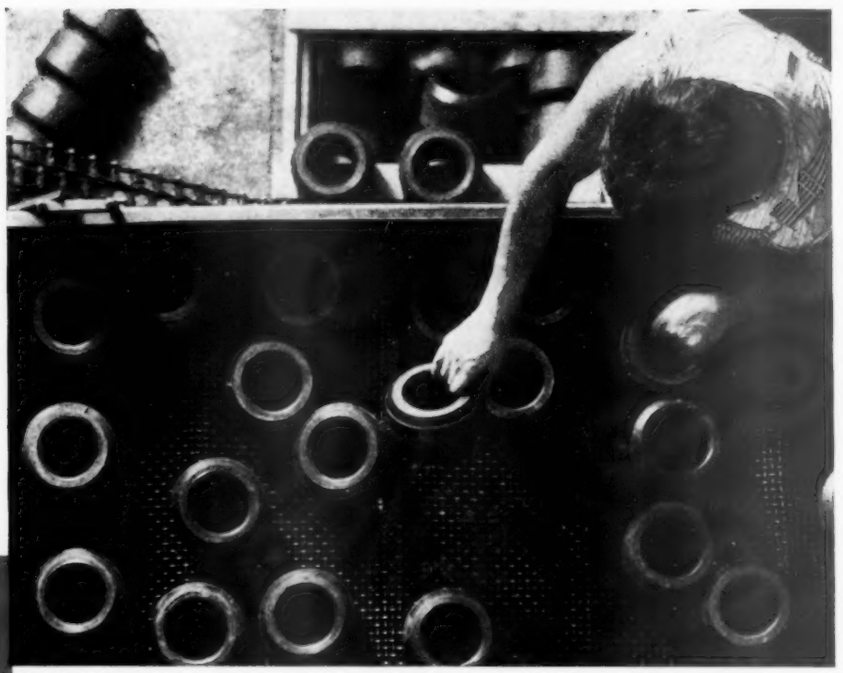
There are two kinds of grooved drums now on the market. One is a cast steel drum, turned and grooved; the other one is steel, too, but the grooves are ready cast by a special foundry process, leaving the hard surface intact without further machining.

We are pleased to give space to this article and to offer the columns of The Oil Weekly *for further discussions on this subject.*—Editor.

Next week's

OIL WEEKLY

The January 30th OIL WEEKLY, which will combine our annual Statistical Edition with a World-Wide Oil Review, will be the best issue of *The* OIL WEEKLY published to date.



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Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

Crude Production Trails Demand 174,000 Barrels

Although the daily average production of crude oil in the United States recorded another moderate gain of 9100 barrels last week, it is apparent that the indicated demand was actually about 174,000 barrels a day more than actual production. The total daily production reported by the American Petroleum Institute for the week ending January 17 amounted to 2,094,000 barrels, whereas the demand in the United States, for all purposes, is believed to have attained a daily rate of 2,268,000 barrels. At this rate, it is seen that the industry is drawing upon crude stocks to the extent of more than 5,000,000 barrels a month, provided that the same differential between supply and demand is maintained for a period of 30 days. This is gratifying and presents a hopeful indication that may mark the definite turn for betterment in the general market situation.

Crude Price Cut Surprise

The slash in Texas crude prices last week was somewhat of a surprise to operators in view of the fact that production of that state had been maintained at a point well below the allowable figure established by the railroad commission. Whether or not such a reduction was fully justified at this time is a metter that rests solely with the purchasing companies posting the reductions initiated by Humble Oil & Refining Company. As a matter of fact, it is believed that this latest reduction really represents a belated move designed primarily to discourage new drilling operations in the newer producing areas of the state. If the supply and demand situation is considered alone, it would appear that the slash in prices was not justified. If the lower schedules were determined upon as a deterrent to new developments, there was, perhaps, some justification for posting lower prices. The fact remains, however, that the economic situation is showing unmistakable signs of improvement that cannot long sustain present prices. At any rate, there is not much incentive now to increase production above present levels and the act of marking time until impending increases in demand justify production will undoubtedly prompt a more competitive crude market during late February and early March. A look ahead, even at a relative slackened demand for gasoline cannot fail to involve an accelerated rate of demand for crude that is expected to begin in March.

Excess Widely Evident

All states with the exception of California and Kansas now show a deficit between actual production and state production limits; the shortage for the United States now amounting to 24,000 barrels daily. California production now shows an excess of 42,400 barrels daily, while Kansas is producing about 2550 barrels a day above the economic limit. Oklahoma's production is now 23,850 barrels below the allowable output of 465,000 barrels, while Texas shows a deficit of 25,050 barrels, based upon an economic limit of 700,000 barrels daily. Actually, the allowable production of Texas is placed at 680,000 barrels daily, while preliminary data indicates a figure even lower than that through February and March. Actual nominations by purchasers of Texas crude, however, seem to show that the actual demand will exceed 700,000 barrels of crude daily to the end of March. Until definite quotas are assigned to the various producing districts of Texas by the Railroad Commission, the figure of 700,000 barrels would seem to represent the economic production limit for this state through the first quarter of the year. Texas, outside of Gulf Coast, showed a gain in production last week of 12,550 barrels, while the Gulf Coast area contributed a further gain of 6400 barrels. This sizeable gain was credited to North Texas, West Texas, the Joiner district, in East Texas and Barbers Hill in the Gulf Coast district. Reports from the Panhandle and North Texas areas received early this week state that production is being sharply curtailed there as a result of the reduction in crude prices.

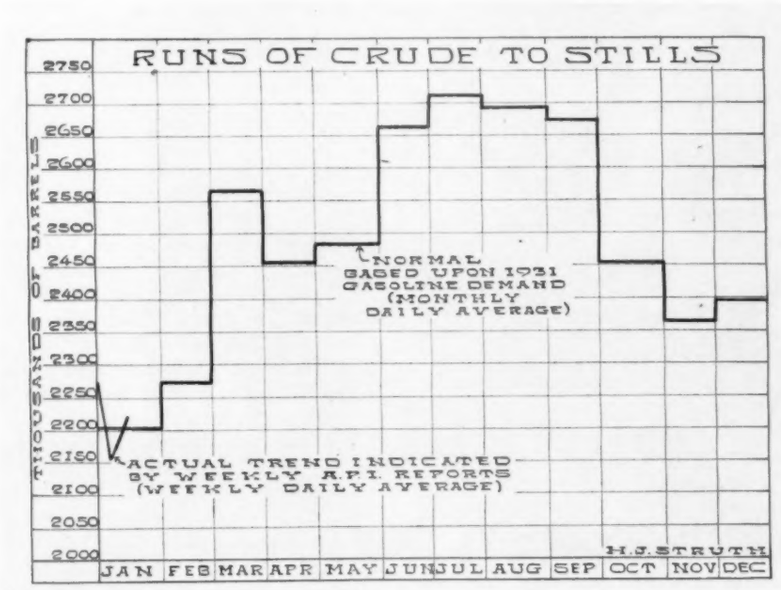
Oklahoma City reported a decrease in daily production last week of 24,500 barrels, offsetting increased production in Earlsboro, Little River and Mission, resulting in a net gain for the state of 16,150 barrels. Kansas production was also increased to the extent of 1800 barrels a day.

Refinery Runs Excessive; Gasoline Stocks Increased

Runs of crude through refinery stills for the week ending January 17 aggregated 15,528,000 barrels, a daily average of 2,218,000 barrels, according to reports received by the American Petroleum Institute. On a Bureau of Mines basis, this represents a daily average of 2,285,000 barrels, or a gain over the preceding week of 76,000 barrels a day. The accompanying chart presents some idea of the normal course of crude runs this year, based upon the indicated monthly gasoline demand. It will be noted that runs to stills for the week ending January 10 were at about a normal rate, but last week's results (not charted) show an excess throughput of 81,000 barrels a day. On present recovery of gasoline from crude, this represents an excess gasoline production of about 34,000 barrels a day, or at the rate of 1,020,000 barrels of excess gasoline a month. This condition should not be allowed to continue since such practice cannot fail to bring about further demoralization in the refined oil market structure. The "dead line" for crude runs for the month of January is 2,204,000 barrels; to exceed that amount is folly and the sooner this is generally realized by refiners, the sooner will prices show improvement.

Stocks of gasoline as of January 17 increased 801,000 barrels to 40,384,000 barrels. A study of normal conditions indicates that stocks of gasoline during January should increase by about three million barrels, but the rate of gain for last week would indicate a total increase for the month of 3,200,000 barrels. Nor is that figure representative of the trend at this time. In fact, by maintaining still runs at a daily rate of 2,204,000 barrels, the industry is amply providing for market requirements and creating a reserve

MARKET SECTION



against increased consumption during the spring and summer. By piling up gasoline stocks at an excessive rate of 34,000 barrels a day, above normal storage requirements, actually represents an excess stored supply of gasoline for January of more than a million barrels, or a total addition to storage of more than four million barrels in one month. The refining industry has presumably learned a lesson for the experiences of the past year and should give serious attention to the need for immediate curtailment to the economic limit prescribed by the indicated demand for gasoline during the present and ensuing months of this year.

California Curtailment Hanging in the Balance

In the face of an ultimatum to reduce production to 500,000 barrels or face the consequences, California producers as a whole have not obeyed the order and judging from conclusions which may be drawn from a superficial survey, "something awful is about to happen." In the final analysis of the matter, either crude prices will have to be reduced, curtailment thrown overboard or the committee which was responsible for the ultimatum will be forced to admit its lack of discipline, if production fails to

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending January 10, 1931

(Figures in barrels of 42 gallons)

District—	Potential Daily Capacity	Potential Capacity Reporting Total	Potential Capacity Reporting Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast	612,700	612,700	100.0	3,299,000	471,300	76.9	5,790,000	8,771,000
Appalachian	141,300	132,500	93.8	499,000	71,300	53.8	1,091,000	1,038,000
Indiana, Illinois, Kentucky	390,800	381,000	97.5	1,642,000	234,600	61.6	4,573,000	3,309,000
Oklahoma, Kansas, Missouri	461,100	412,200	89.4	1,473,000	210,400	51.0	2,758,000	4,002,000
Texas	809,000	743,500	91.9	3,693,000	527,600	71.0	6,814,000	10,596,000
Louisiana-Arkansas	266,600	262,000	98.3	977,000	139,500	53.2	1,704,000	2,353,000
Rocky Mountain	150,100	139,700	93.1	268,000	38,300	27.4	1,659,000	971,000
California	898,500	887,600	98.8	3,166,000	452,300	51.0	15,194,000	103,468,000
Total week January 10	3,730,100	3,571,200	95.7	15,017,000	2,145,300	60.1	39,583,000	134,508,000
Total week January 3	3,730,100	3,571,200	95.7	14,667,000	2,095,300	58.7	39,780,000	136,224,000
Total week January 11, 1930	3,650,900	3,485,600	95.5	17,519,000	2,502,800	71.8	43,741,000	144,051,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included above in the Totals of Their Respective Districts.								
Texas Gulf Coast	529,500	529,500	100.0	2,878,000	411,100	77.6	5,507,000	8,020,000
Louisiana Gulf Coast	147,500	147,500	100.0	655,000	93,600	63.5	1,459,000	1,402,000

MARKET SECTION

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

	Indicated Demand First Quarter 1931	Economic Limit First Quarter 1931	Actual Daily Average Week Ending Jan. 10, 1931	Excess
Arkansas	54,000	52,000	51,000	—1,000
California	547,000	500,000	542,400	42,400
Kansas	109,000	105,000	107,550	2,550
Louisiana	73,000	71,000	69,700	—1,300
Oklahoma	510,000	465,000	441,150	—23,850
Texas	739,000	700,000	674,950	—25,050
Balance of U. S.	236,000	225,000	207,250	—17,750
Total	2,268,000	2,118,000	2,094,000	—24,000

reach the 500,000-barrel mark within a week. Every indication points to an output of at least 535,000 barrels, so it will be interesting to await developments.

A variety of predictions have been made as to the outcome, following announcement that production has not been forced to 500,000 barrels, but it is most logical to assume that crude prices will be slashed and as little oil as possible taken by purchasing companies which have more oil than they can now handle profitably. Possibility that the elaborate and efficient conservation plan will be abandoned looms, but there is a chance that even if prices are reduced drastically, the umpires will be retained to aid the industry through a recovery which is sure to come after a turn for the better has been recorded. The organization probably will be maintained, even in the case of a price revision. Only the outright abandonment of curtailment would justify the releasing of the umpires and their personnels.

Cracked Gasoline Production

Week Ending January 10

(Barrels of 42 gallons)

District	Potential Charging Capacity (Daily) Total	Reporting	Per Cent	Production Total	Daily Average
East Coast	246,900	222,900	90.3	512,000	73,200
Appalachian	45,900	43,100	93.9	84,000	12,000
Ind., Ill., Ky.	294,200	269,200	91.5	462,000	66,000
Okla., Kans., Mo.	219,900	182,900	83.2	302,000	43,100
Texas	395,500	282,600	71.5	522,000	74,600
Louisiana-Ark.	109,400	103,600	94.7	238,000	34,000
Rocky Mountain	95,100	84,700	89.1	82,000	11,700
California	182,700	178,700	97.8	260,000	37,100
Total Week Jan. 10	1,589,600	1,367,900	86.1	2,462,000	351,700
Total week Jan. 3	1,589,600	1,376,400	86.6	2,547,000	363,900
Total week Jan. 11, '30		(Not Available)			

The Texas and Louisiana Gulf Coastal Figures Shown Below are included in the totals of their respective districts.

Texas Gulf Coast	305,000	219,500	72.0	404,000	57,700
Louisiana Gulf Coast	77,000	77,000	100.0	176,000	25,100

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

(Barrels of 42 gallons)

	Week Ended January 10	Week Ended January 3
AT ATLANTIC COAST PORTS—		
Baltimore	86,000	428,000
Boston	67,000	.....
New York	954,000	965,000
Philadelphia	349,000	227,000
Others	212,000	"A" 283,000
Total	1,668,000	1,903,000
Daily Average	238,286	271,857
AT GULF COAST PORTS—		
Galveston District	.....	65,000
New Orleans and Baton Rouge	69,000	.....
Port Arthur and Sabine District	.....	.....
Tampa	39,000	.....
Total	108,000	65,000
Daily Average	15,428	9,286
AT ALL UNITED STATES PORTS—		
Total	1,776,000	1,968,000
Daily Average	253,714	281,143
Daily Average Four Weeks Ended	253,607	255,750
Distribution of Total Imports is as follows:		
Crude	1,267,000	1,189,000
Gasoline	194,000	"A" 272,000
Gas Oil	.....	19,000
Fuel Oil	315,000	488,000
Total	1,776,000	1,968,000

"A"—Revised.

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS

(Barrels of 42 gallons)

	Week Ended January 10	Week Ended January 3
AT ATLANTIC COAST PORTS—		
Baltimore	21,000	51,000
Boston	95,000	.....
New York	214,000	475,000
Philadelphia	311,000	.....
Others	5,000	.....
Total	646,000	526,000
Daily Average	92,286	75,143
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	646,000	526,000
Daily Average	92,286	75,143
Daily Average Four Weeks Ended	65,000	56,929
Distribution of Total California Oil Receipts is as follows:		
Gasoline	646,000	388,000
Gas Oil	.....	64,000
Fuel Oil	.....	74,000
Total	646,000	526,000

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
January	671,050	111,700	672,650	178,300	37,650	58,500	142,250	73,850	688,850	2,634,800	81,574,650
February	631,900	111,400	654,600	199,950	39,450	58,400	135,050	74,850	746,550	2,652,150	74,280,200
March	622,650	115,500	644,400	206,000	41,600	58,600	132,700	73,600	649,000	2,544,050	78,865,400
April	657,050	122,200	640,950	206,800	42,100	57,800	138,700	75,950	625,700	2,576,250	77,018,100
May	663,300	131,000	662,350	203,900	39,900	53,800	137,150	82,500	623,700	2,597,700	80,529,600
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
January 3	448,900	108,300	494,300	186,250	41,750	49,750	113,300	102,050	537,500	2,082,100	14,574,700
January 10	457,300	105,750	499,400	185,750	41,150	51,050	111,450	94,550	538,500	2,084,900	14,594,300
January 17	441,150	107,550	511,950	192,150	40,550	51,000	109,150	98,100	542,400	2,094,000	14,658,000
Increase	.....	1,800	12,550	6,400	.....	.....	.....	3,550	3,900	9,100	63,700
Decrease	16,150	.....	.....	.....	600	50	2,300	.....	.....	.....	.....

TEXAS
(Outside Gulf Coast)

PANHANDLE DISTRICT

	Jan. 17	Jan. 10
Carson County	4,800	4,000
Gray County	43,700	41,450
Hutchinson County	8,250	8,100
Wheeler County	350	300
Others	350	300
Total	57,450	54,150

NORTH TEXAS

Archer County	12,000	12,000
Burkburnett	7,500	6,400
Electra	8,700	8,700
Iowa Park-KMA	3,700	3,800
Montague and Cooke Counties	6,250	5,850
Wilbarger	13,100	13,350
North Young County	7,500	8,000
Others	1,600	1,600
Total	60,350	59,700

WEST CENTRAL TEXAS

Brown County	3,900	3,900
Callahan County	1,750	2,650
Coleman County	1,400	1,600
Eastland-Desdemona	3,950	4,000
Jack County	1,300	1,550
Palo Pinto County	400	400
Shackleford County	4,000	4,000
Stephens County	4,500	4,500
Throckmorton County	550	800
South Young County	2,200	2,150
Others	1,550	1,650
Total	25,500	27,200

WEST TEXAS

Crane-Upton Counties	28,250	28,350
Crockett County	1,900	1,850
Ector	8,700	7,400
Howard County	26,800	21,700
Jones County	1,300	1,400
Mitchell-Scurry Counties	2,000	2,000
Pecos County	3,800	3,700
Reagan County	23,900	23,500
Winkler County	51,700	52,550
Yates	92,000	89,400
Others	6,300	6,300
Total	246,650	238,150

EAST CENTRAL TEXAS

Boggy Creek	2,300	2,500
Corsicana-Powell	5,200	5,000
Currie	300	300
Joiner District	2,750	500
Mexia	3,900	3,800
Nigger Creek	200	200
Richland	150	150
Van Zandt	27,700	27,300
Wortham	600	600
Others	50	50
Total	43,150	40,400

SOUTHWEST TEXAS

Chapman-Abbott	5,250	5,300
Dale	250	250
Darst Creek	31,900	31,700
Laredo District	14,750	14,800
Luling	9,750	9,750
Lytton Springs	800	800
Salt Flat	14,200	15,250
Somerset	1,350	1,350
Others	600	600
Total	78,850	79,800
T'tl Tex. (outside Gulf Coast)	511,950	499,400

TEXAS GULF COAST

Barbers Hill	22,450	19,500
Batson	1,100	1,150
Big Creek	2,850	2,900
Blue Ridge	1,400	1,500
Boling	950	1,050
Damond Mound	650	550
Esperson	2,550	2,550
Fannett	550	500
Goose Creek	4,350	4,300
Hankamar	2,350	2,500
Hull	7,300	7,200
Humble	10,850	10,700
North Dayton	950	1,300
Orange	2,100	2,200
Orchard	2,800	2,050
Pettus	8,050	8,100
Pierce Junction	10,050	9,800
Port Neches	1,700	1,400
Raccoon Bend	8,450	8,600
Refugio	30,100	29,900
Saratoga	1,100	1,100
Somerville	2,700	1,500
Sour Lake	2,300	1,900
South Liberty	2,800	2,700
Spindle Top	12,800	13,000
Sugar Land	12,300	12,000
West Columbia	4,650	4,600
Others	2,800	2,300
Total	163,000	156,850
Texas Total	674,950	656,250

OKLAHOMA

Allen	12,600	12,750
Asher	750	800
Blackwell	1,900	2,250
Bowlegs	11,650	12,450
Braman	1,900	1,900
Bristow Slick	11,000	10,900
Burbank	13,700	13,700
Carr City	13,700	12,250
Cromwell	4,400	4,200
Cushing	11,900	11,750
Davenport	900	900
Duncan District	6,500	6,250
Earlsboro	18,250	17,250
East Earlsboro	19,000	16,600
East Little River	10,350	10,300
East Seminole	1,950	1,700
Fox	950	900
Garber	4,200	4,450
Graham	2,700	2,500
Healdton	9,400	9,300
Hewitt	5,600	5,200
Hubbard	1,000	800
Konowa	16,300	16,300
Little River	23,150	21,250
Logan County	3,700	3,150
Maud	2,750	2,500
Mission	7,850	5,100
North Okmulgee	7,000	8,000
Oklahoma City	70,300	94,800
Osage (outside Burbank)	22,500	22,500
Papoose	2,150	1,950
Pearson	500	550
St. Louis	20,100	19,350
Sasakwa	4,050	4,100
Scholem Alechem	11,800	11,400
Searight	7,750	5,500
Seminole	12,550	13,500
South Earlsboro	7,450	7,500
South Okmulgee	4,000	4,600
Thomas	600	400
Tonkawa	4,900	4,550
West Asher	8,700	8,000
Wewoka	4,750	4,500
Yale Jennings	5,400	5,350
Others	28,600	33,350
Total	441,150	457,300

CALIFORNIA

Dominguez	9,800	9,800
Elwood-Goleta	38,300	31,500
Huntington Beach	22,600	22,000
Inglewood	14,000	15,000
Kettleman Hills	22,100	22,500
Long Beach	94,300	92,300
Midway-Sunset	53,600	56,000
Playa del Rey	36,500	37,700
Santa Fe Springs	71,600	72,800
Seal Beach	17,300	16,500
Ventura Avenue	44,300	44,400
Others	118,000	118,000
Total	542,400	538,500

KANSAS

Augusta-Fox Bush	3,250	3,200
Churchill	3,500	3,500
Eldorado-Towanda	13,350	13,300
Florence-Covert	850	850
Greenwood County	16,950	17,000
Oxford	2,550	2,500
Peabody-Ebling	2,450	2,450
Rainbow Bend	1,150	1,150
Russell	3,150	3,150
Sedgwick	18,250	19,100
Voshell	16,100	11,550
Others	26,000	28,000
Total	107,550	105,750

NORTH LOUISIANA

Caddo Heavy	2,800	2,750
Caddo Light	8,200	8,150
Carterville	2,000	1,900
Cotton Valley	1,750	1,750
DeSoto-Red River	2,750	2,750
Haynesville	5,400	5,450
Holly	900	900
Homer	3,350	3,300
Urania	4,950	5,000
Zwolle	6,950	7,650
Others	1,500	1,550
Total North Louisiana	40,550	41,150

LOUISIANA GULF COAST

Bayou Boullion	100	100
East Hackberry	3,800	4,650
Edgerly	400	400
Evangeline	800	700
Hackberry	850	850
Lake Barre	3,400	1,700
Lockport	5,150	5,300
Port Barre	1,800	1,900
Sorrento	50	50
Sulphur Dome	2,700	2,800
Sweetlake	1,150	1,150
Vinton	5,800	5,850
White Castle	1,000	1,000
Others	2,150	2,450
Total Louisiana Gulf Coast	29,150	28,900
Louisiana Total	69,700	70,050

ARKANSAS

Champagnolle	4,800	4,750
El Dorado	3,900	3,900
Lisbon	800	800
Nevada	1,000	1,050
Smackover Heavy	34,100	34,100
Smackover Light	4,500	4,550
Stephens	850	850
Others	1,050	1,050
Total	51,000	51,050

MOUNTAIN STATES

WYOMING

Big Muddy	1,900	1,900
Elk Basin	700	750
Grass Creek	2,050	2,050
La Barge	1,700	1,800
Lance Creek	150	150
Lost Soldier	3,200	3,150
Oregon Basin	2,900	2,900
Rock River	2,150	2,150
Salt Creek	24,850	23,100
Others	4,150	4,400
Total	43,750	42,350

MONTANA

Cat Creek	1,150	1,150
Pondera	1,450	1,450
Sunburst	4,450	4,450
Others	50	50
Total	7,100	7,100

COLORADO

Florence	400	450
Fort Collins	1,150	1,150
Moffats (Craig)	950	900
Others	1,600	1,600
Total	4,100	4,100

NEW MEXICO

Artesia	650	650
Balance Lea County	8,300	8,150
Hobbs High	32,750	30,300
Hogback	450	400
Rattlesnake	750	1,100
Table Mesa	100	100
Eddy	150	300
Total	43,150	41,000
Total Mountain States	98,100	94,550

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., N. Y.)	99,500	101,500
Michigan	9,650	9,950
Total Eastern States	109,150	111,450

PRODUCTION SUMMARY

East of Rockies	1,453,500	1,451,850
Total U. S.	2,094,000	2,084,900

MARKET SECTION

North Texas Gasoline Goes Up After Crude Price Cut

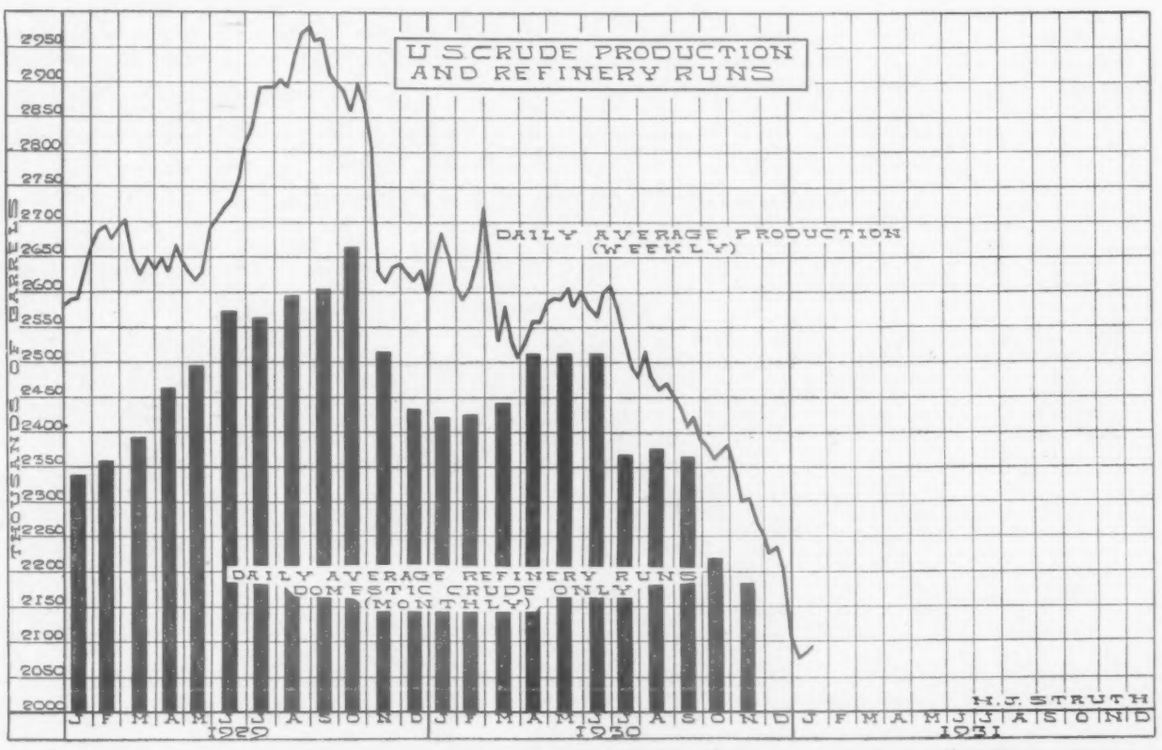
The general cut in crude prices put into effect last week in North Texas and the Texas Panhandle did not have the usual adverse effect on gasoline quotations, and early this week interior refineries of Texas were receiving about one-quarter cent per gallon more than the previous week.

Mid-Continent plant owners as a whole are staging a new attempt to check their operation losses by holding out for better prices. Sales of U. S. motor gasoline by North Texas refineries early this week ranged from four to 4¼ cents per gallon. Reduction in plant operations has aided the campaign for higher gasoline prices, although cheaper priced crude affords a temptation for refineries to alter their schedules. New price schedules prevailing in North Texas and the Texas Panhandle are near the record low level. Average lifting cost per barrel of oil exceeds 50 per cent of the new price scale, and with such conditions prevailing it is quite likely that producers selling to independent refiners will no longer supply crude at 20 and 30 cents below posted. A number of distress-priced crude contracts remain in effect, but refiners are showing a willingness to go back to posted schedules, as evidenced by the fact that Panhandle Refining Company, Archer Refining Company and Dale Oil & Refining Company have posted a new schedule identical with that of the majors. The posting of this schedule does not forbid these refining units from continuing to use reduced priced crude.

Oklahoma City Operators Want Increased Allowable

Monday, January 19, proved to be a busy day both in the Oklahoma City pool and in Oklahoma City. At a meeting called by Otto Bradford, field umpire, 21 operators voted in increase the allowable percentage of potential from 1½ per cent, as now in effect, to 10 per cent. Eleven operators voted against the measure and 10 failed to vote. Although the umpire has not completed taking potentials of all wells it is believed that the potential will closely approximate the estimate of 5,388,000 barrels daily, the basis on which the pool is being prorated during January. Under the present plan of 1½ per cent of potential the pool has an allowable production of approximately 80,000 barrels daily, which is slightly below the market requirement and has allowed some relief of the storage situation. With the allowable production set at 10 per cent of potential or approximately 538,800 barrels and market outlet less than 100,000 barrels daily, it is difficult to see how the new rate will benefit even a small majority of the operators for any considerable period of time.

For several days preceding action of the operators the field umpire and corporation commission had been busy citing companies and preparing citations for contempt of the proration regulations. Citations were filed against Morgan Petroleum Company for over-producing its Stout well, which was opened during the Christmas holidays, and against Hall and Briscoe who are alleged to have produced their Grace well for a period of approximately one month while deepening and to have removed approximately 200,-



MARKET SECTION

Weekly Comparisons of Permits Granted for New Wells

	Week Ending January 17	Previous week	This week 1930	Total this Month	This month 1930	Total this year	Total this date last year	1930 year total
Arkansas	3	1	2	4	9	4	9	108
California	11	5	13	19	47	19	47	922
Louisiana	9	8	17	27	54	27	54	948
Kansas	12	7	12	23	53	23	53	944
Oklahoma	33	19	66	72	200	72	200	2,830
Texas	90	80	100	234	516	234	516	7,052
Total	158	120	210	379	979	379	979	12,804

000 barrels, none of which was reported to the field umpire. Citations were being prepared against California Operating Company for over-producing the Twyford Stout 1, alleged to have been opened for 22 hours on its initial flow when only four hours were permitted under the regulations, and against Hall and Briscoe et al for over-producing the Mueller 1.

Seek Open Hearing on Oklahoma City Increase

Producers in the Oklahoma City pool will petition the Oklahoma Corporation Commission to increase the allowable output of the field to 10 per cent of its potential production. This was the result of a conference of producers at Oklahoma City Monday, January 19. Only 20 of the 42 concerns represented voted in favor of the change, however, 11 did not vote, leaving 11 opposed to any change.

The plan now is to draw a petition, which will go before the Corporation Commission in the hope that it will set the question for open hearing. It is known that such a hearing will result in strenuous protest in some circles, although it seems certain that some of the larger purchasing concerns will take no active part either way.

This decision to ask for increased output at Oklahoma City has been accepted as a thrust at the program of proration in Oklahoma, despite the fact that the petition to be drawn will go before the state body as a proration measure.

The situation at Oklahoma City has brought more objection to the proration schedule than any other pool in the Mid-Continent. Efforts to raise the allowed output are accepted as a thrust at the proration scheme. When downward revisions were made for Texas oil prices last week, most Mid-Continent producers accepted that as the forerunner of further reductions, especially for Oklahoma and Kansas. Although these reductions have not been made, producers still are convinced that other Mid-Continent oil fields will come under the ban of lower prices.

So far there has been no change from the situation that prevails in the settled well districts of Oklahoma and Kansas. Last week the sub-committee of purchasers made announcement to the effect that it would determine exactly

(*Continued on page 66*)

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	2	3	..	1	1	1	1	1	...	5
California	9	10	9	8	..	..	..	2	4,250	6,900
Indiana	1	..	1	..	..	..	..	..	7	...
Kansas	12	9	7	1	2	7	3	1	5,830	100
Kentucky	7	..	1	..	3	..	3	..	5	...
Louisiana	9	15	1	8	3	4	5	3	280	2,820
Mississippi	3	1	..	..	2	1	1	..	...	...
New Mexico	3	5	3	..	..	1	..	4	9,579	...
New York	..	3	..	3	..	..	..	..	...	8
Ohio	22	31	6	10	5	12	11	9	20	60,810
Oklahoma	50	23	27	8	3	5	20	10	115,034	436
Pennsylvania	..	30	..	18	..	5	..	7	...	35
Texas	83	77	42	28	22	6	19	43	45,585	26,418
West Virginia	..	16	..	5	..	8	..	3	...	32
Illinois	..	4	..	1	..	..	..	3	...	12
Total	201	227	97	91	41	50	63	86	180,608	97,576
Increase	..	..	6	..	..	..	..	..	83,032	...
Decrease	26	..	..	..	9	..	23	..	...	...

MARKET SECTION

Crude Oil Price Quotations

(Revised to January 20, 1931)

▼ ▼ ▼

CRUDE PRICE CHANGES

Effective January 14, Sun Pipe Line Company met schedule posted by Humble Oil & Refining Company, January 14, on all grades of Texas Gulf Coast oil.

Effective January 15, all purchasers met Humble Oil & Refining Company's schedule of reduced prices posted for Texas crudes as of January 14.

Effective January 15, The Texas Company, in addition to meeting Humble Oil & Refining Company's schedule of crude prices in Texas, posted a reduction for Markham crude of 6 cents a barrel, reducing the price of this oil from 75 cents to 69 cents a barrel.

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Bradford—Alleghany district (posted by Tide Water Pipe Co., Ltd.) (Effective Nov. 13, 1930) $2.15

Penna. Grade Oil in National Transit Lines (Other Pennsylvania) (Effective, Nov. 13, 1930) 1.85

Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania) (Effective Nov. 13, 1930) 1.80

Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective Nov. 13, 1930) 1.70

Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective Nov. 13, 1930) 1.45

Corning Grade in Buckeye Pipe Lines (Ohio) (Effective Oct. 28, 1930)..... 1.25

Somerset Oil in Eureka Pipe Lines (Effective July 23, 1930) 1.14

Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929)... 0.60
*Oil run prior to July 1, 1929 is $2.10 per bbl.

(Posted by Stoll Oil Refining Company)

Oil City, Ky., oil in Stoll lines (Effective Oct. 28, 1930) 1.10

MICHIGAN

(Posted by Dixie Oil Company)

Traverse and Dundee (Muskegon), effective April 16, 1930, same gravity and price schedule as Prairie posts in Oklahoma and Kansas, on gravity basis prior to reduction on Oct. 27, 1930.

(Posted by Pure Oil Company)

Midland, Midland County, Oct. 27, 1930..$1.10

CENTRAL STATES FIELDS

(Posted by Ohio Oil Company)

(Effective Oct. 28, 1930)

Wooster	$1.35	Princeton	1.30
Lima	1.10	Illinois	1.30
Waterloo	1.20	Plymouth	.88
Indiana	.87	W. Kentucky	1.15

CANADIAN CRUDE

(Posted by Imperial Oil Refineries, Ltd.)

(Effective October 28, 1930)

Petrolia $1.50
Oil Springs 1.57

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co., and Stanolind Crude Oil Purchasing Company, Effective Nov. 1, 1930. Carter Oil Company Same Schedule Effective Oct. 28.

Below 29	$0.65	35-35.9	.92
29-29.9	.69	36-36.9	.95
30-30.9	.73	37-37.9	.98
31-31.9	.77	38-38.9	1.01
32-32.9	.81	39-39.9	1.04
33-33.9	.85	40 and above...	1.07
34-34.9	.89		

Magnolia Petroleum Company Effective October 28

Below 26	.53	27-27.9	.61
26-26.9	.57	28-28.9	.65

From here to 40 and above gravity same schedule as above.

NORTH TEXAS

North Texas Crude in Wichita, Wilbarger, Archer and Northern Young counties:

ALL PURCHASERS

(Effective Jan. 14, 1931)

Below 29 gravity	$ .55
29-29.9	.57
30-30.9	.59
31-31.9	.61
32-32.9	.63
33-33.9	.65
34-34.9	.67
35-35.9	.69
36-36.9	.71
37-37.9	.73

(Continued on Page 50)

California Prices

Effective September 15, 1930, at 7:00 A. M. the following are the current prices offered by STANDARD OIL COMPANY OF CALIFORNIA

Gravity	Signal Hill	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	Playa del Rey†
14-14.9	$ .70	$ .70	$ .70	$ .70	$ .70	$ .70			$ .70	$ .70	3 .70	$ .70	$ .70		$ .55	$ .55	$ .55	$ .55	$ .55	$ .55	
15-15.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	
16-16.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	
17-17.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	
18-18.9	.76	.76	.76	.76	.76	.76			.76	.76	.76	.71	.76		.55	.62	.62	.62	.62	.62	
19-19.9	.82	.82	.82	.82	.82	.82			.82	.82	.82	.77	.82		.55	.70	.70	.70	.70	.70	
20-20.9	.88	.88	.88	.88	.88	.88			.88	.88	.87	.83	.87			.78	.78	.78	.78	.78	$.74
21-21.9	.94	.94	.94	.94	.94	.94			.94	.94	.93	.90	.93	$.92		.86	.86	.86	.86	.86	.77
22-22.9	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	.98	.97	.98	.95		.94	.94	.94	.94	.94	.81
23-23.9	1.07	1.07	1.07	1.07	1.07	1.07			1.07	1.07		1.05	1.04	1.01		1.02	1.02	1.02	1.02	1.02	.84
24-24.9	1.12	1.12	1.12	1.12	1.12	1.12	$1.12		1.12	1.12		1.08	1.08	1.05		1.06	1.06	1.06	1.04	1.04	.87
25-25.9	1.17	1.17	1.17	1.17	1.17	1.17	1.17		1.17	1.17		1.11	1.12	1.09		1.10	1.10	1.10	1.06	1.06	.90
26-26.9	1.22	1.22	1.22	1.22	1.22	1.22	1.22		1.22	1.22		1.15	1.16	1.13		1.14	1.14	1.14	1.08	1.08	
27-27.9	1.26	1.26	1.26	1.26	1.26	1.26	1.27		1.26	1.26		1.19	1.21	1.18		1.18	1.18	1.18	1.11	1.10	
28-28.9	1.30	1.30	1.30	1.30	1.30	1.30	1.32		1.30	1.30		1.23	1.25	1.23		1.23	1.23	1.23	1.15		
29-29.9	1.34	1.34	1.34	1.34		1.34	1.37			1.34		1.26	1.29	1.28		1.29	1.29	1.29	1.19		
30-30.9	1.38	1.38	1.38	1.38		1.38	1.42			1.38		1.29	1.33	1.33		1.35	1.35	1.35	1.23		
31-31.9	1.43	1.43	1.43	1.43		1.43	1.43							1.38		1.41	1.41	1.41	1.27		
32-32.9	1.48	1.48	1.48	1.48			1.52							1.43		1.47	1.47	1.47	1.31		
33-33.9							1.57							1.48		1.53	1.53	1.53	1.35		
34-34.9							1.62	$1.32						1.53				1.59	1.39		
35-35.9							1.66	1.39						1.58				1.65	1.43		
36-36.9							1.72	1.46						1.63							
37-37.9							1.78	1.53						1.68							
38-38.9							1.84	1.60						1.73							
39-39.9							1.90	1.66						1.78							
40-40.9							1.96	1.72													
41-41.9							2.02	1.78													
42-42.9							2.08	1.84													

KETTLEMAN HILLS*	
35-39.9	$1.10
40-44.9	1.20
45-45.9	1.35
50-54.9	1.50
55 and above	1.65

*Posted by Union Oil Company. †Effective December 18, 1930.

MARKET SECTION

CRUDE OIL PRICE QUOTATIONS

(Continued from page 49)

38-38.9	.75
39-39.9	.77
40 and above	.79

Ranger, North Texas except as listed above, Mexia, Powell, Boggy Creek, Richland, Worthham, Lytton Springs, Currie, Moran, and Nocona crudes:

ALL PURCHASERS
(Effective Jan. 14, 1931)

Below 29 gravity	$ .65
29-29.9	.69
30-30.9	.73
31-31.9	.77
32-32.9	.81
33-33.9	.85
34-34.9	.89
35-35.9	.92
36-36.9	.95
37-37.9	.98
38-38.9	1.01
39-39.9	1.04
40 and above	1.07

PANHANDLE

ALL PURCHASERS
(Effective Jan. 14, 1931)
Gray County Crude

Below 29 gravity	$ .48
29-29.9	.50
30-30.9	.52
31-31.9	.54
32-32.9	.56
33-33.9	.58
34-34.9	.60
35-35.9	.62
36-36.9	.64
37-37.9	.66
38-38.9	.68
39-39.9	.70
40 and above	.72

ALL PURCHASERS
(Effective Jan. 14, 1931)
Carson and Hutchinson County Crude

Below 29 gravity	$ .43
29-29.9	.45
30-30.9	.47
31-31.9	.49
32-32.9	.51
33-33.9	.53
34-34.9	.55
35-35.9	.57
36-36.9	.59
37-37.9	.61
38-38.9	.63
39-39.9	.65
40 and above	.67

WEST TEXAS

Posted by All Purchasers, Effective October 28, 1930
Winkler and Pecos County Crudes:

Below 25	$ .55	31-31.9	.69
25-25.9	.57	32-32.9	.71
26-26.9	.59	33-33.9	.73
27-27.9	.61	34-34.9	.75
28-28.9	.63	35-35.9	.77
29-29.9	.65	36 and above	.79
30-30.9	.67		

Crane, Upton, Crockett, Ector, Ward, Loving, Matchell,* Howard, and Glasscock Counties, Texas, and Lea County, New Mexico crudes
Posted by All Purchasers, Effective Oct. 28, 1930

Below 25	$ .50	31-31.9	.64
25-25.9	.52	32-32.9	.66
26-26.9	.54	33-33.9	.68
27-27.9	.56	34-34.9	.70
28-28.9	.58	35-35.9	.72
29-29.9	.60	36 and above	.74
30-30.9	.62		

*Magnolia Petroleum Company uses Gravity scale and Coltex Refining Company pays flat price of 60 cents for Mitchell County.

GULF COAST

(Posted by Humble Oil & Refining Company, The Texas Company and Sun Company)

Gulf Coast Crude will be classified as follows in fields designated below:

Goose Creek, Hull, Boling, Liberty, Orange, Pierce Junction, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugar Land, West Columbia and Humble crudes:

"A" GRADE—All crudes conforming to the following tests:

Viscosity—Not less than 100 seconds at 100° F. Saybolt.

Sulphur—Not over .4%.

Beaume Gravity—Not over 25 at 60° F.

Cold test of distillates having a viscosity of 1000 seconds at 100° F, shall not be over 5° F.

"A" GRADE—$ .80.

"B" GRADE—Embraces all Coastal crude which does not meet the test for "A" grade crude:

ALL PURCHASERS
(Effective Jan. 14, 1931)

High Island	$ .75		
Grade "A"	.80		
Grade "B"			
Below 25	$ .69	33-33.9	.87
25-25.9	.71	34-34.9	.89
26-26.9	.73	35-35.9	.91
27-27.9	.75	36-36.9	.93
28-28.9	.77	37-37.9	.95
29-29.9	.79	38-38.9	.97
30-30.9	.81	39-39.9	.99
31-31.9	.83	40 and above	1.01
32-32.9	.85		
Jennings, La.	.80		
Markham (The Texas Company)	.69		

SOUTHWEST TEXAS

ALL PURCHASERS
(Effective Jan. 14, 1931)

Refugio Heavy crude, below 25 gravity	.69		
Refugio Light crude:			
25-25.9	$ .71	33-33.9	.87
26-26.9	.73	34-34.9	.89
27-27.9	.75	35-35.9	.91
28-28.9	.77	36-36.9	.93
29-29.9	.79	37-37.9	.95
30-30.9	.81	38-38.9	.97
31-31.9	.83	39-39.9	.99
32-32.9	.85	40 and above	1.01
Mirando crude	$ .69		
Salt Flat crude	.90		
Darst Creek crude	.90		
Pettus crude	1.01		
Luling	.75		
Corsicana, heavy	.75		

Determination of quality, deductions, adjustment for temperature, etc., on oil purchased in Texas, shall be in accordance with the rules and regulations of the Texas Railroad Commission, and on oil purchased in New Mexico shall be in accordance with the rules and regulations of the Corporation Commission of New Mexico.

LOUISIANA-ARKANSAS

All Purchasers Except Magnolia Petroleum Co., Effective Oct. 29, 1930
Pine Island District, Haynesville District, Bull Bayou District, El Dorado District, Rainbow District, Cotton Valley

Below 29	$ .65	37 to 37.9	.98
29 to 29.9	.69	38 to 38.9	1.01
30 to 30.9	.73	39 to 39.9	1.04
31 to 31.9	.77	40 to 40.9	1.07
32 to 32.9	.81	41 to 41.9	1.10
33 to 33.9	.85	42 to 42.9	1.13
34 to 34.9	.89	43 to 43.9	1.16
35 to 35.9	.92	44 and above	1.19
36 to 36.9	.95		
Urania, La.	.75		
Bellevue, La	1.00		

Magnolia Petroleum Company, Effective October 30, 1930

Below 26	$ .53	27-27.9	.61
26-26.9	.57	28-28.9	.65

From here prices same as schedule above.

STEPHENS

Below 29	$ .54	31 to 31.9	.66
29 to 29.9	.58	32 and above	.70
30 to 30.9	.62		
Smackover	.70		
El Dorado, East Field	.70		

ROCKY MOUNTAIN FIELDS

(Salt Creek prices effective Oct. 28, 1930)

‡Salt Creek 29-29.9	.69
" " 30-30.9	.73
" " 31-31.9	.77
" " 32-32.9	.81
" " 33-33.9	.85
" " 34-34.9	.89
" " 35-35.9	.92
" " 36-36.9	.95
" " 37 and above	.98
Elk Basin (Effective Oct. 28, 1930)	.125
Grass Creek light	1.25
Big Muddy	1.00
Lance Creek	1.33
Rock Creek	1.01
Mule Creek	1.20
Rex Lake	1.10
‡Osage (Nov. 1, 1930)	.85
‡Cat Creek, Montana	1.25
Pondera	1.45
Sunburst, Montana	1.55
‡Hogback, New Mexico	1.40
Artesia, New Mexico	.75

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

STATE CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.

Texas—Two per cent of gross value.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 per cent of gross market value.

Montana—Two per cent of gross value at well.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

Terms of Kettleman Hills Unit Plan Are Made Known

Los Angeles.—After more than eight months of continuous study the committee of operators of the North Dome of Kettleman Hills, assisted by subcommittees of technical and legal experts, has finally completed a plan for unit operation of that most important oil and gas field.

The plan provides for operation of the field by two units. The first, a non-profit association known as the Kettleman North Dome Association, articles of incorporation of which were filed with Secretary of State Frank C. Jordan on December 29, 1930, will operate all productive lands on the North Dome excepting fee lands belonging to Standard Oil Company of California. The second, the Standard Oil Company, will operate its own fee lands aggregating some 9460 acres or 44.6 per cent of the whole proved area, under an operating agreement with the Kettleman North Dome Association.

The 11 incorporators of the association, who will also constitute the board of directors, are: J. A. Brown, president, General Petroleum Corporation of California; R. E. Collom, manager, Continental Oil Company; S. B. Mosher, president, Signal Oil & Gas Company; Wm. C. McDuffie, president, Pacific Western Oil Company; Rush M. Blodget, vice-president, Geo. F. Getty, Inc.; Wm. Reinhardt, vice-president, Shell Oil Company; Wm. Humphrey, president, Associated Oil Company; Carl H. Beal, petroleum engineer; M. E. Lombardi, director, Standard Oil Company of California; J. R. Pemberton, chief geologist, Petroleum Securities Company; and E. H. McCollough, California representative, Amerada Petroleum Corporation.

Persons or corporations having rights to operate lands for oil and gas on the North Dome of Kettleman Hills are eligible for membership. The operating agreement includes a map of the field on which are delineated two lines, the inner or so-called "red line" bounding a proved area which may be increased but never reduced, thus guaranteeing to owners of properties therein participation throughout the life of the plan. The outer or "blue line" delineates the area of original participation amounting to 11,740 acres. As this line is intended at all times to approximate the true productive limits of the field, its position is subject to change as actual development work extends or reduces the productive limits. The plan makes provision for adjusting membership interest resulting from changes in the blue line and also provides a schedule of weighted participation for properties so affected. Adjustments and classifications are to be made yearly during the first 10 years upon resolution adopted by two-thirds vote of all the directors. At the end of 10 years the blue line as then located is to include all participating acreage and no further classification of acreage is to be made. Members thereafter shall be subject to call for moneys for the investment and operating funds and shall share in the production of oil, gas, and gasoline in the ratio that their proved acreage plus 50 per cent of their classified non-commercially productive acreage bears to the total proved acreage plus 50 per cent of the classified non-commercially productive acreage in the entire field under control of the association.

May Drill at Own Expense

Members holding non-participating acreage are given the right to drill upon such acreage at their own expense in an endeavor to prove its productivity and right to participation. If such drilling is successful, the association may take over the well, paying the member twice its cost, and upon proper action by the board of directors the lands proved productive by the well may be admitted to participation.

All existing wells, facilities and equipment in Kettleman Hills North Dome field are to be taken over by the association at cost, from their present owners. Titles to lands are not be assigned but holders of titles and operating rights who are members will authorize the association to take exclusive possession of their lands and to conduct all operations on them.

Members are given the right to receive their shares of oil, gas, and gasoline in kind or to request the board of directors of the association to sell such products for their accounts. Should members desire, they can accept delivery of their pro rata share of wet gas and arrange privately for its treatment for gasoline, but wet gas not accepted in kind by members shall be treated by the association either under contract or in the association's own plants.

All contracts for the sale or movement of dry gas from the association's properties shall be pooled and deliveries under these contracts by the association shall be for the proportionate benefit of the members excepting that gas deliverable under contracts held by Milham Exploration Company are to be filled for Milham's own account.

The board of directors of the association are charged with the duty of commencing immediately and proceeding diligently to drill wells to determine the true productive limits of the field. The board is also empowered to drill and operate additional wells and to conduct operations in such manner as to obtain the maximum yield of petroleum products from the association's properties without wastage of gas as prohibited by the laws of the state of California and the United States of America. Oil is to be produced with the lowest possible gas-oil ratios consistent with best known engineering practice. As soon as it is possible to do so, without unlawful waste of gas, the association is to produce its acreage percentage of daily production of crude oil of 50,000 barrels from the Kettleman Hills North Dome. The directors are further obligated to increase this oil production as rapidly as practicable and consistent with obtaining maximum revenue to its members, until eventually the field shall be producing as nearly as possible its proportionate share of the entire crude oil production of the state of California as indicated by its proportion of the state's oil reserves.

Plan Covers Lease Arrangements

The plan includes an important section devoted to government leases and relations with the Secretary of the Interior. This section provides that if the secretary finds it necessary and advisable in the public interest, he will approve the operating agreement and extend the life of government leases beyond the ordinary 20-year period to the time of termination of the plan, which presumably will be at the end of the commercially productive life of the field. Provision is also made for a modification of the oil royalties payable to the government on "B" leases from the former sliding scale based on average well production to a new "step" scale based on the total oil production from the association's lands.

Signatures of operators together with the consent of their lessors or royalty owners are being sought inasmuch as the plan was made possible by an act of congress, July 3, 1930, amending the "Federal Leasing Act" and this amendment of its own provision expires midnight January 31, 1931, after which time no unit plans can be formed on government lands without further act of congress. The association is incorporated under the laws of the state of California and requires approval of the State Oil & Gas Supervisor of California as provided in Section 8c of the Gas Conservation Law of 1929.

(Continued on page 68)

How Much Gas With a Barrel of Oil?

(*Continued from page 37*)

formation pressure, then, it follows that the work done through gas expansion is still that amount required to lift oil from working fluid level to the surface, although sôme of this work is done below the working level.

This might be made clearer by considering a plain air lift in a water well; although air is introduced below the working water level, necessarily, and generally with a submergence greater than the lift above working level, the lift effected through the aid of energy from the air, is only through that height from working level to the surface. The elevation of water up to the working level is accomplished through potential energy derived from remaining waters of formation.

In the air lift, it is true, some of the work of lifting fluid is done below the working level, and the flow line is usually full of a water-air mixture, but, at the same time, the weight, or pressure, of water column above the working level is indicated by gauge pressure reading of inlet air, less friction down to air outlet into the fluid in the well, for the gauge pressure reading of air at the inlet to the flow line reflects the pressure of a solid water column equivalent to the inlet pressure, as if the water column were not aerated, although the aerated column is much longer than an equivalent solid column.

In taking readings of casing pressure, between it and the tubing some of the actual formation pressure may be offset by a column of fluid in the casing, the pressure of which offsets some of the formation pressure. In such cases, which exist very frequently, the weight, or pressure of the column between casing and flow line is to be added to the surface gauge reading of casing pressure, for ascertaining true formation pressures.

Necessarily, all wells should be tubed when flowing, if only to secure the correct, and proper information needed for control over gas-oil ratios and formation pressures.

Available Energy B, from gas, then, is utilized only for elevating oil from fluid working level to the surface.

Quantity of Energy B

Measurements of the quantity of gas found with oil, as free gas, may be directly made upon the production of a quantity of the same, using Boyle's Law, where presrure decreases in the ratio PV=C. This calculation is used in computing the volume of gas in gas sands, before the same is produced, in estimating gas reserves of a gas sand.

Additional factors are needed with Boyle's Law, as a compensation for the added gases of solution, which are evolved with pressure reduction due to withdrawals.

With liquefiability of gas, and solubility of gas ascertained by direct measurement, and used as a correction in Boyle's Law, the writer has calculated the total oil content of an oil sand, together with the gas contained therein, free and in solution. Such calculations, when based upon accurate continued measurements of oil and gas, and the solubilities thereof, the writer fully believes, will become a universal method of estimating, not only the potential reserves of gas in its various forms with oil, but also of the total reserves of oil contained in the sand with the gas.

Compared with the usual method of estimating oil reserves through porosity of an oil sand, the foregoing method appears one of precision, while estimating pore spaces is simply an estimate, because such cannot be measured, and we know that porosity varies laterally and vertically in any oil sand, usually being greater at the bottom of the formation, although not in all cases.

As a general proposition, again, the static pressure intitially found in an oil formation is equivalent to the pressure of a column of water equal in height to well depth. This is modified in every case, by the elevation of the source of water entering a formation, compared with the elevation of the well mouth. The source of water in a shallow well, in a dipping formation, is nearer to the well than the source of water from a deeper well on the same location. And if the ground surface rises against the dip, the further away the source of water, the greater is the elevation of the static level of water above the well mouth. We find therefore, in several fields, that the static level of oil is above ground, while in other cases, the static level is below ground. With these modifications, the general rule first stated above, is used below.

Taking the flank well cited above in this paper, where the static formation pressure is 1200 pounds, it was known at the time of reading pressure, that there was some free gas in the roof of formation, indicating that all of the oil in the sand was saturated with gas at the existing pressure and temperature. The gas-oil ratio was 261 cubic feet per barrel, or 3.2 cubic feet of gas per barrel per atmosphere of pressure above zero gauge pressure. The original formation pressure, or the static pressure, was 1320 pounds, indicating that in the formation at the well, there had already been released from oil, 8.16 atmospheres times 3.2 cubic feet per atmosphere, or 26.1 cubic feet of gas per barrel.

The energy contained in 261 cubic feet of gas at 1200 pounds gauge pressure, which might be obtained if 100 per cent thermal efficiency could be obtained in converting this energy into useful work, is 9400 foot pounds per cubic foot as on curve of Figure 1, and 261 cubic feet therefore contain 2,453,400 foot pounds of energy.

As the net work done by this gas consists in elevating one barrel of oil of 0.855 specific gravity, or 299.5 pounds, through a vertical distance of 653 feet, making 195,573 foot pounds, we have:

$$\frac{195{,}573}{2{,}453{,}400} = \text{eight per cent mechanical efficiency.}$$

As mechanical efficiencies in the air lift, of which a flowing well with oil and gas is a simile, can be as high as 50 per cent, it follows that there is contained in the gas of solution only, seven times and over, as much energy as would be required from gas of solution to produce its oil under the above conditions.

The writer made a similar calculation with reference to the Tonkawa field, in 1924, printed in THE OIL WEEKLY, December 19, of that year. Many compared calculations since, point to the correct premise of the foregoing.

Soluble Gas

The gas of solution, as herein, enters the well with oil, as oil. The minimum amount of gas of solution therefore that can be produced with a barrel of oil is that amount in solution with the oil upon entrance. Under the sustained pressure condition of the well cited above, it is evident then that as the duty realized from the gas of solution is relatively low, it is entirely possible to assert such control over production as will secure high recoveries, and yet, sustain pressures in the formation. In so doing, though, it

is also evident that production may be retarded over a longer flowing period of the well. And naturally with a high realization of energy from Sources A and B, the recovery costs are materially lower, for such wells flow for long periods without any mechanical aid and without an expensive layout for equipment in furnishing such aid.

Free Gas

The original free gas found in most formations, as indicated by cores above the oil producing section of the same sand, and by wells producing gas only for a time, and then some oil, from the same sand, contains energy proportionate to its volume and pressure, of course, which in some cases may exceed that energy found in the gas of solution due to preponderant quantities of free gas over that of solution, if such are found.

While it has been considered a difficult matter to produce oil from a sand with upper free gas, still, the same is entirely possible in many ways, one of which is illustrated on page 25, THE OIL WEEKLY, November 15, 1929, where an upper sand section with free gas is separated from a lower sand section containing oil with gas in solution, allowing lower oil only to enter the well with only its gas of solution. This method might be supplemented with others, such as a casing setting on top of the sand, with a liner therein setting on top of the oil zone, shutting out the upper free gas zone, letting oil from the oil zone into the liner from below. Or the liner shoulder seat may be further down into the oil zone, say two-thirds of the vertical oil zone thickness, against the time the upper oil zone is evacuated of oil, or partially so.

Where there is a deficiency of free gas and soluble gas, there may still be sufficient energy, stored in the remaining gas of solution, to produce oil without mechanical assistance, especially where formation initial pressure is relatively high, and is there sustained.

In most cases in the past, there has been an immediate emission of gas from solution, as indicated by immediate heavy reductions in pressure set up by flowing wells open. Such gas of course migrates to the crest of structure, elevating the quantity of gas produced with oil from crest wells, while denuding other oil still in the sand of some of its gas of solution.

Where back pressure is maintained on a flow line at the surface, for any reason, the total work done lifting oil is increased by the equivalent of back pressure, and as this work is above the working level of a well, it is added to the work required from formation gas.

Such work, however, is not useful work and therefore is not creditable against the amount of gas energy used in producing oil from the well.

Gas Injection Before Depletion

A field with such a well as that set out in this paper, where all the oil is fully saturated with gas, and where formation pressure initially, is equal to approximately the pressure of an equivalent water column, has been shown to possess initially, seven times and over the amount of energy necessary to elevate all of the oil to the surface with a reasonable mechanical efficiency in the utilization of gas energy.

The additional energy contained in free gas in the roof of formation adds to the available quantity, the sum of which is entirely calculable as herein.

In an assumption that all gas produced with oil is compressed and placed back in the sand from whence it came, the controlling factor of costs of such operations is the gas-oil ratio; if ratios are allowed that are higher than necessary, and more gas is produced than that of solution, then the compressing operations will be expensive, compared with operations looking toward producing the minima of gas with oil.

In order to avoid water encroachment, it seems that the amount of gas needed in pressure sustaining operations, is that volume which, at elevated pressure of formation, will equal the volume of oil withdrawn—and no more, where oil is produced with only its gas of solution.

Computation of energies, as:

That delivered into a sand with injected gas as a media.

That energy found associated with oil and gas in a sand, or Energy A, Energy B as above, and the energy of free formation gas; show that unless gas proportions are held down close to a minima, injection operations are likely to prove expensive in the end, while, with minimum gas quantities per barrel, such operations may be profitable, both in higher recoveries, and in lower lifting costs.

Quite naturally, when an oil sand approaches a non-productive stage, the gas-oil ratio will mount. The amount of gas per well may be the same as usual, but a decline in production will elevate the ratio. So far as the writer knows, there is no field yet approaching exhaustion which has been operated under asserted control of gas-oil ratios, though, and just what the end of operations in such a field will be is problematical in some respects. Under the control set out in this paper, wells so operated would flow until the available oil in the sand is exhausted, and water replaces the same, where the gas and oil are not replaced by gas injection.

In stating the gas-oil ratio for a field, as a whole, flowing wells only are to be considered as within the scope of ratio control. To combine some pumping wells, perhaps making water, with other wells still flowing, secures an incorrect gas-oil ratio, and forms a mis-statement.

Formation Pressure Equalization

A freely flowing sand which admits oil into a well with a low formation pressure differential, and a high depression factor, naturally possesses a higher elevation of working level for a given rate of production than a well in a tighter sand, or a badly completed well, under equal initial pressure conditions.

And a sand from which the finer silt and sand grains have been removed through selective operation of a proper mesh strainer, holding back the coarser particles, flows more freely, and has a greater depression factor than otherwise, under equal formation pressure conditions.

The matter of migration of silt and finer sand particles through the pore spaces of coarser, is a material factor in the maintenance of a high elevation of fluid working level, relative to formation pressure and production rates. This subject was outlined in THE OIL WEEKLY of October 27, 1923, and as this is out of print, a digest is below.

In a field with loose sand, requiring strainer, the writer found by comparing sand from cores obtained when the well was drilled with sand from the well after strainer had been pulled months later, that the latter sand contained a far greater quantity of finer sand and silt than originally, indicating that the finer material had migrated with oil to the strainer face, where it was there arrested, building up a relatively non-porous zone around the well.

Re-setting strainer in the same hole did not improve production, but whipstocking out, and getting away from the old hole into untouched sand, production increased materially upon setting a slightly coarser strainer.

Paraffin Accumulated

In a field with consolidated sand, paraffin accumulated on the well bore sand face, the removal of which increased

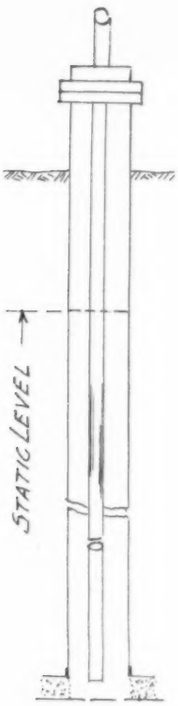


FIGURE 2

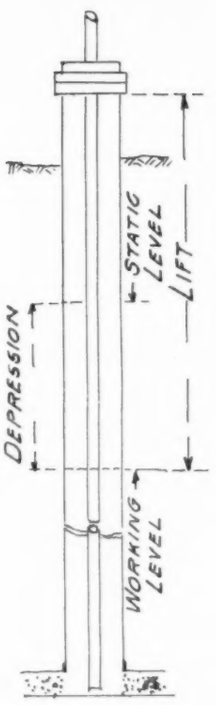


FIGURE 2-A

Figure 2: Small inlet area well, with static level at the same elevation as in a well with larger inlet area.

Figure 2-A: Excessive depression of a small inlet area well

production materially. And later, in the same well, when pumping, melting out paraffin accumulations from the well wall, each time paraffin was so removed, the well sanded up with the finest of sand, resembling wind blown sand, or finer, all passing through 200 mesh when washed. The original cores from this bore hole showed a very coarse sand, indicating that the finer particles had migrated with oil through the interstices of the coarser to the sand face, where they were there arrested by the coating of paraffin, creating a relatively non-porous zone around the well bore, also.

Such wells, with so much resistance to flow through the sand into the well, invariably possess low depression factors, creating a higher lift from fluid working levels to the surface.

Thus, because working fluid levels affect the duty requirements from formation gas, the method of completing a well and maintaining it, is a marked controlling factor of the rate of oil recovery, and the lift necessary for such recovery.

The accompanying sketches of wells illustrates this point. Figures 2 and 3 show wells of the same sand, but with the sand shown of a thickness measured by the effective inlet area from the sand into the well. Formation pressure being the same in each well, the static fluid level is the same also in each well.

At the *same rate of production,* Well 2, shown in Figure 2-A, with its greater depression, and lower depression factor, has a higher lift from fluid working level to the surface, than Well 3, shown in Figure 3-A, for, in the latter well, its free flow requires a lesser depression to secure the same *rate* of flow.

The smaller inlet area of Figures No. 2 and 2-A well, allows the fluid to reach the same static elevation as in the larger inlet area well of Figures 3 and 3-A, but when these wells begin flowing, we have quite a different picture; the free flowing well produces oil at a faster rate under the same pressure conditions.

Hence, the working fluid level of a free flowing well being higher than that of a well not free flowing, the same rate of production prevailing in both wells, *the lift performed by gas alone as a source of energy increases as free flowing qualities decrease.*

It is clear now that wells do not possess the same capacity, and as capacity is a function of gas-oil ratio, as above, if the same ratio is to be secured in wells, then the lift must be the same that is performed by gas alone. Then, fixing the lift, by fixing the depression to attain a *uniform working fluid level of all wells producing from the same sand,* is a direct means of asserting more exact control over the amount of gas produced with oil.

It is obvious now, that to fix the flow of wells at the same rate, sets up a greater lift from working fluid level to the surface in some of the wells—those with low depression factors —and a lesser lift in wells with high depression factors.

The wells with the greater lift, or lesser depression factor, will remove more pressure from the casing, hence formation pressure is lowered around such wells, and a locally lowered formation pressure is to be avoided for many reasons, principally:

1. The emission of gas from solution in the oil of the lowered pressure zone;
2. The migration of free gas to the well bore;
3. The coning of waters below the oil;
4. The local encroachment of waters laterally;
5. The greater amount of work required done with the aid of formation gas;
6. Elevation of ratios in wells affected.

Therefore, *formation pressure uniformity*—necessary and desirable uniformity—being secured by maintaining casing pressures uniform, from well to well, it follows that the capacity of a well is that rate of flow secured under uniform formation pressure conditions, whatever that rate happens to be, under a uniform depression of static fluid level to working fluid level. And the rate of flow of all wells as a whole may be controlled by asserting a uniform working fluid level over the field.

Or, more plainly, the total quantity of production may be varied through uniform alterations of pressure of all wells, by altering the depression equally in all wells, thereby still maintaining uniformity.

It may be easily visualized, although not accurately measured, that surrounding a low casing pressure well, there is zone of oil emitting gas of solution, elevating the ratio of that well, and of any well within its influence; and also, surrounding a high casing pressure well, there is less gas being emitted due to pressure reduction, with a series of contoured pressure bowls, or depression over the field, some of which overlap others.

Relation Between Gas Energy of Average Wells and Deep Wells

The maximum rate of production for the wells of a single oil sand is properly such a rate that the work required done in lifting oil from working fluid level to the surface, will not exceed the available energy of the gas of solution, with a reasonable mechanical efficiency in the utilization of such energy, for, where the energy required is greater than that available from soluble gas, such energy must be furnished

otherwise, either through greater withdrawals of gas per barrel of oil above that of solution, or by compressors, either to inject gas into the sand or through the gas lift.

In no case, though, of where oil is completely saturated with gas at the formation pressure of an equivalent water column of well depth, should any additional energy to that of the gas of solution be required to lift all the oil to the surface—if all of it could be driven into the well. The exceptions to this case are those fields and those sands of a field which possess originally a quantity of gas in the oil less than that of a saturated solution; or, where the oil is completely saturated, a formation pressure materially lower than that of an equivalent water column. These exceptions are quite frequently found in shallow sands, particularly those with a more or less permeable cover which has allowed gas to escape.

But the deeper wells, from which our great flush production of today comes, usually have no exceptions insofar as the writer can determine. These deeper wells—those from 2500 feet on down, are abundantly supplied with natural sources of energy which, if used skilfully, should produce the major part of oil.

The general rule appears to hold that in superimposed oil sands, and in sands of the same characteristics of oil and gas, but with increasing depths, the gas quantity increases with depth, due most probably to tighter covers over the formation with deeper location. Further, the general rule appears to hold that oil is less in specific gravity as its depth increases, due probably to the effect of earth formations upon oil passing through.

Then, as formation pressures generally increase with depth, solubility of gas in oil is also increased with depth, being a matter of pressure on gas in contact with oil. Therefore, there is a compensating condition of gas energy found as wells are drilled to deeper producing horizons; the energy in the dissolved gas in a saturated barrel of oil affords the same basis of calculation for an 8000-foot well as for a 4000-foot well, with the additional favorable features in the deep well that it usually shows more gas in excess of that of solution and its oil is lighter, requiring less energy for lifting it each one hundred feet than for the heavier oil of shallower wells. Thus, while the advantage of construction cost is with the shallow well, the advantage of a proportionately greater amount of energy per barrel of oil is with the deeper well, creating more favorable conditions for deeper production.

Technico-Legal Phases

In the matter of ownership of oil and gas in situ below ground, our higher courts have consistently held that these are fugitive, belonging to whomsoever reduces to possession. So far as the writer is advised, there has been no decision as yet of our highest court, bearing on the ownership, allocation or other features relative to the energy found associated with the gas of an oil bearing formation.

It seems, though, that common law, according to legal advices, may apply to gas energy in the same way as to water rights, in which there has been extensive litigation in the past, as to the water itself, and as to potential energy of water when used for manufacturing power. Opinions on this subject read that water rights have two bases; one on Spanish common law, which prevailed in that part of our country originally Spanish directed upon the initiation of Caucasian rule, which says that a water right belongs to one who appropriates first, and uses. The other is based on English common law, which insures possession to one who appropriates and uses, but not to the detriment of a neighbor. There are conflicting decisions of our higher courts on these questions, the result of which led to confusion, and loss, whereby one was compelled to abandon expensive works for utilizing water and its potential energy.

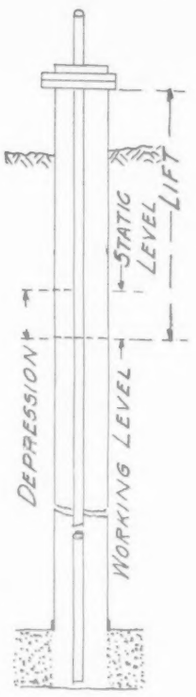


FIGURE 3

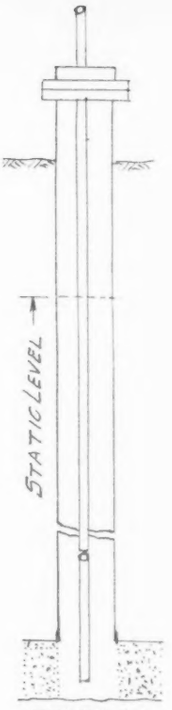


FIGURE 3-A

Figure 3: Large inlet area well with static level at the same elevation as a well with smaller inlet area

Figure 3-A: Moderate depression of a large inlet area well

And there is another line of decisions bearing on subsurface waters, although these do not involve energy.

In the litigation in California, over formation gas, owners of properties located on the crest were greatly disturbed over the matter of limiting the amount of gas produced with oil, on the theory that crest wells could not be operated to produce oil with as low ratios as flank wells.

These legal-technical phases of production are sure to be threshed out eventually, and when they are, our courts should be thoroughly and correctly informed with reference to the technical phases.

Conclusions

In conclusion: The matter of depression factors should, and will, take a place in the operation of a unit field; it is a distinct error to level flowing wells of a sand to the same rate of production; the working fluid level of wells flowing from the same sand should be maintained at the same elevation in all wells; allowing production to assume any figure that secures uniformity of working level; an excessive depression of working level sets up high gas proportions, and requires greater energy per barrel of oil to lift such oil from the lowered working fluid level to the surface.

And, with the qualification that accurately controlled ratios and pressures are maintained in a field, to hold the ratio down and the formation pressure up, coupled with the best skill in completing wells to secure free flowing qualities, it may be said that unit operation, or operation by agreement, of an oil field beginning with its discovery well, can be so directed that the major percentage of oil can be produced with no greater quantity of gas per barrel than that contained initially in solution, and without mechanical aid of any kind in the deeper fields of today.

"Economic Situation Demands Immediate Action"

(*Continued from page* 31)

tion necessary to supply that demand for the six months ending March 31, 1931, shows that each barrel of gasoline imported displaces from the market four barrels of domestic crude. Crude oil, gasoline, and other refined products, imported in the year 1930 have displaced from the market approximately 400,000 barrels daily of domestic production.

Since for a period of more than seven years, there has been an intense propaganda fostered and promoted throughout the country, in the daily press and in many of the nation's most prominent magazines, to convince the public of the early exhaustion of the petroleum reserves of the United States, it appears advisable at this point to outline briefly some of the former estimates of future oil production in the United States, and later to call attention to the vast petroleum reserves which we actually possess. It would be pertinent to inquire what forces and organizations, corporate or individual, have promoted and paid for this propaganda, and who are the beneficiaries thereof. An inquiry of this nature, properly and fairly conducted, would in all probability go far toward explaining the so-called conservation movement, and why it has been urged for a period of years.

In referring to the former estimates of future recoverable petroleum reserves, let me state in advance that I do not wish to reflect whatever upon the good faith of the eminent engineers and other authorities making these estimates, but the recital of these estimates, in the light of subsequent information, will demonstrate how easily even the most eminent and learned can be mistaken on this subject, and will show further that perhaps the present advocates of the reservation of our petroleum reserves safely in the ground may be mistaken.

1908—David T. Day—Estimated minimum of 8,500,000,000 barrels; estimated a maximum of 15, to 22½ billion barrels. From 1908 to 1930, inclusive, United States has produced 11,442,447,000 barrels—all of Day's minimum, plus 33 per cent.

1914—Ralph Arnold—Estimated future production at 5,700,000,000 barrels; from 1914 to 1930, inclusive, United States produced 10,079,396,000 barrels—all of Arnold's estimate, plus over 80 per cent.

1915—United States Geological Survey—Estimated future production at 7,600,000,000 barrels; 1915 to 1930, inclusive, United States has produced 9,813,633,000 barrels—all of that estimate plus 29 per cent.

1921—Certain petroleum geologists of the American Association of Petroleum Geologists—estimated future production at 9,150,000,000 barrels; 1921 to 1930, inclusive, United States produced 7,719,222,000 barrels—nearly 85 per cent in nine years.

1925—The committee of eleven appointed by the Federal Oil Conservation Board estimated future production from proven acreage on present methods—5,300,000,000 barrels; 1925 to 1930, inclusive, United States has produced from these properties and new pools—5,243,161,000, almost 99 per cent.

1930—In the year 1930 the United States, according to the best estimates available at the present time, produced 901,000,000 barrels, compared with 1,005,598,000 barrels in 1929.

1859 to 1930, inclusive—from beginning to date, the United States has produced a total of 13,149,090,000 barrels.

The production curve has been on the up grade for several years. The country could have produced this year, had there been any demand for it, several hundred million barrels in excess of that which was produced.

In 1913, the United States produced 248,446,000 barrels. In 1929, Oklahoma alone produced over 253,000,000 barrels, or more oil than the entire United States produced in so recent a year as 1913. Oklahoma produces a billion barrels of oil each four years; it is capable of producing a billion barrels each year, if the demand called for such development. The same is true of Texas and California. It is highly probable that any one of the states of Oklahoma, Texas and California can produce as much oil as the entire United States has produced to date. The oil resources of these states loom larger with each passing year, as deeper drilling and exploration work is done. These states are getting the development at this time, and have for a number of years last past. Other states would leap forward accordingly, if development to a like extent were done within their borders.

The production of the United States has been swinging upward from the discovery of oil to the present time—a period of 72 years. When we consider that the vast domain from the Canadian line to the Gulf of Mexico, lying immediately east of the Rocky Mountains, as well as the Pacific Coast states, is potential oil territory, practically undeveloped and unexplored at this time, it is apparent that the production curve will be on the upward trend for many years to come, and that when said curve starts downward, if that day ever comes, we will produce from our then known reserves of oil as much or more oil than has been produced prior to the day when the decline curve will start on its downward course.

What I have heretofore said has been applicable to reserves of oil to be produced from oil wells. Let us now consider the vast reserves contained in the oil shale deposits in the states of Colorado, Wyoming, Utah, Indiana, and other states. These deposits have been accurately surveyed, their oil content measured, and suffice it to say that in one deposit in Colorado alone, the experts of the government and the Colorado Bureau of Mines are agreed that there are 80,000,000,000 barrels of recoverable oil, should it ever become necessary to use the same.

We have in the coal deposits of the United States, which are more than 50 per cent of the coal deposits of the world, another great source of oil, so great indeed that it is difficult for the human mind to comprehend. By hydrogenation, oil and its derivatives, including gasoline, can be successfully produced from coal. It is not at all improbable that the perfection of this process, using coal, or the discovery of some other form of power, may within a few years make our present oil reserves all but valueless.

Secretary Wilbur and other protagonists of so-called conservation continually speak of wasting our oil reserves, when as a matter of fact we are only using them without waste. It is certainly not fair to continually tell the public that the American petroleum industry is wasting our valuable oil reserves, when the country is utilizing this great natural resource for the creation of new wealth within the country. This is the "Oil Age." Let us utilize our oil while it is yet valuable, and before the discovery of some new form of power which may supercede oil for the generation of power. It is the utmost folly to continue on a program which perhaps was conceived with honesty of intentions, but which has outlived its usefulness and has become destructive in a superlative degree. Imagine for a moment, if you will, that

man of similar vision to those promoting the so-called oil conservation policy of the present day, had been directing the policies of the government and the course of business from the foundation of our country until the present time; that, acknowledging our natural resources, the products of our mines, were irreplaceable, they should be preserved for use at some distant day; and that instead of developing our natural resources and utilizing them, we had clung tenaciously to a policy of so-called conservation or reservation, then this great country of ours would now be, from the Atlantic to the Pacific, an undeveloped expanse of almost unbroken wilderness; the few inhabitants thereof a pastoral people; the great civilization which we have builded, and the great industrial and commercial development which has taken place, as yet undreamed of. What has made the United States the most enlightened, the most prosperous, the most advanced in all lines of endeavor of any nation in the world, has been the utilization of our natural resources. It would be just as logical to contend that we should import our iron ore, our lumber, our lead, coal, zinc and other mineral products, reserving our supplies thereof in this country for some future national emergency, as it is to insist that we should import our requirements of oil. In fact, Russia is at this time willing to sell us all these things at a price less than our cost of production, and France, Great Britain, and other nations indebted to the United States would willingly pay their war debts by sending to us all of these products. How any patriotic American citizen can advocate such a policy is beyond comprehension.

Over Supply of Crude

We have heard a great deal and read more in the daily press and the oil journals concerning the over-production of crude oil in the United States. As a matter of fact, during the last 12 years (1918 to 1929, inclusive), there has not been an over-production in the United States, but there has been an over supply. During that period we have imported 950,000,000 barrels of crude oil. During that period we lacked 600,000,000 barrels of producing as much oil as we consumed, but during the same period we added to storage of crude oil in the United States 350,000,000 barrels, which addition to storage, as may be seen by these figures, was occasioned almost wholly by importing more oil into this country than we had any need of, so that it clearly appears that the great burden upon the petroleum industry of carrying in storage nearly 700,000,000 barrels of crude and refined products was not occasioned by over-production in the United States, but over-imporation of foreign oils.

Now let us inquire as to what effect the so-called conservation policy, coupled with the proration and curtailment movement and the importation of oil and refined products, has had upon the petroleum industry in the United States. The price of crude oil at the well has been reduced from time to time, until now it is being sold very much below the cost of production, except in isolated pools of new and large flush production, although, as before stated, we have reduced the production since the peak week in August, 1929, nearly 900,000 barrels daily, and the average price of crude oil throughout the country has, during the same period, been reduced more than one-third in price.

The case of Oklahoma is typical of all the rest. During the week ending August 24, 1929, the production of Oklahoma was 735,750 barrels per day, and for all of this production there was a ready market. Since then, by co-operative effort, and in line with the published suggestions of the Federal Oil Conservation Board and the requests of the major purchasers of oil in that state, the production has been reduced until in the week ending January 3, 1931, Oklahoma actually produced only 448,900 barrels daily, or a reduction in the production during that period of 286,850 barrels daily. This has been accomplished in that state, in the face of the fact that the state could, with ease, supply sufficient oil to furnish the entire markets of the United States at the present time and for a long time to come, from production already developed.

The proration movement and the curtailment of production in the various oil producing states was inaugurated ostensibly for the purpose of stabilizing the petroleum industry, of preventing additions to storage, and balancing supply with demand. It has been a success only in so far as it has proved the ability of the industry to co-operate and accomplish curtailment of production. As production has been reduced, imports have absorbed the market demand theretofore supplied by domestic oil, and instead of the price of oil being stabilized, it has been steadily reduced until we are now almost upon a competitive basis, so far as prices are concerned, with cheap Venezuelan oil. One of two things must happen, and soon. Either imports of crude oil and refined products must be curtailed, and the price thereof equalized with domestic products by the imposition of an adequate tariff, or the petroleum industry must be permanently placed upon a competing basis, so far as price is concerned, with the foreign oil. In fact, this is being gradually brought about, and it will not be many months before the destruction of the petroleum industry in the United States is complete. Already some 30,000 small wells in northeastern Oklahoma and southeastern Kansas have lost their market, due to the inability of Prairie Oil & Gas Company to continue purchasing oil in the Mid-Continent.

As stated by Mr. Requa, in opening the Colorado Springs conference, there are in the United States approximately 250,000 wells, with an average production of one barrel per day each. In addition to that, there are some 50,000 wells with an average production of five barrels per day each. In the aggregate, these wells have a settled production of over 500,000 barrels. They have been operated at a loss for more than three years. Many of them are being abandoned and plugged each week, under the benign influence of the present so-called conservation program. Ultimately these wells will all be lost, and in the name of conservation, 300,000 small wells, with a daily production of 500,000 barrels, and with recoverable reserves of oil of hundreds of millions of barrels, will have been destroyed. To save these wells would be true conservation, and it is within the power of the federal government to save them, if it will. As they are being abandoned, the oil field laborers, with his family, living on the lease and operating these wells, has been thrown out of employment. He knows no other kind of work and under present conditions could not obtain employment if he did. There are literally thousands of these families at the present time depending upon charity, and I can say, with feeling and in truth, that these men are native Americans, the kind that do not ask for charity, they do not wish to receive it, but who only claim the right by honest toil to support themselves and families.

Conservation Has Failed

Conservation has been tried as a remedy for the demoralization of the petroleum industry, and it has miserably failed, and will continue to fail as long as imported oil and refined products absorb the market demand as fast as domestic production is reduced. The domestic petroleum in-

dustry is being ruthlessly destroyed, in the name of conservation. The purchasing power of the oil producing states has been reduced by hundreds of millions of dollars. The welfare of the petroleum industry is no longer of local significance. If one-third of the area of the United States, with a population of 22,000,000 of people, is impoverished to the point where the inhabitants cannot purchase from the industrial and manufacturing sections of the country those things which a civilized and highly developed community need, there can be no industrial and commercial recovery in the United States for many years to come. The civilization of the Southwest has been builded upon oil and the allied and kindred industries dependent upon the petroleum industry. If this industry is destroyed, and the wealth and prosperity which it has created is transferred to some foreign country, this great civilization, until recent years prosperous and contented, will be destroyed, half of the people in the oil country must seek employment and outlets for their energies in other lines of industries already overcrowded, most of them will be compelled to leave that country, and the wonderful cities of the Southwest, builded for the most part by the oil industry, will become depopulated, and their magnificent office buildings become the roosting place of bats and sparrows.

We are met today in an attempt to work out a remedy for the appalling conditions in the petroleum industry with which we are confronted. All other principal industries of the United States, when suffering under similar conditions to that now prevailing in the petroleum industry, have been granted relief and given protection from foreign domination and control, by a protective tariff. The principle of a protective tariff for industries being injured or destroyed by cheap foreign imports has become the settled policy of this government. Both the Democratic and Republican parties, in their platforms in the year 1928, strongly endorsed such protection to American industries, and I would again remind you that Vice-President Curtis, in campaigning for the election of the present administration in a tour of the Mid-Continent, in that year promised the industry tariff protection, and we all know that he was sincere in his declarations.

When it became apparent in the latter part of January, 1930, after a drastic cut in the price of crude oil, without any economic reason therefor, that those major companies engaged in importing crude oil and refined products in the United States had not given the full measure of co-operation promised by them, in curtailing their foreign production and imports commensurate with the curtailment of production in the United States, and after those same interests believed it was too late for the domestic producers to obtain relief from congress in the then pending tariff bill, a mass meeting of the oil industry was held in Tulsa, Oklahoma, on January 29, 1930. A large delegation of oil men arrived in Washington on February 3, 1930, and presented to President Hoover and to the congress their plea for protection to this great basic industry. The tariff bill had then passed the house, had been reported by the finance committee to the floor of the senate, and the time was too short within which to thoroughly acquaint the house and senate with the true condition of the petroleum industry. Since then, conditions have steadily grown worse, and most of the things which were then told congress would happen, if we were not given protection, have transpired. Congress did include in the tariff bill a provision directing the tariff commission to investigate and report to congress the cost of Venezuelan oil and refined products delivered at Gulf and Atlantic ports, and the cost of domestic oil delivered at the same ports, and we are now expecting that report to be completed within a few days. Certainly, by such a provision in the tariff bill, it was the intention of congress, should the fact warrant, to grant us relief and protection at the next ensuing session of congress. The kindly reception accorded us at the last session, the generous support given in such a short time by congress, is assurance that when members realize the true facts in connection with this question, relief and protection will be granted.

Relief Bills Considered

Congress has recently had under consideration relief bills, under which it is proposed to give relief in various sections of the country to the farmers and others. In the oil-producing states, as is generally known, the farmers and land owners own one-eighth royalty in all the oil and gas produced. The producing oil companies hold under lease, for future prospecting, millions of acres in all the oil-producing states, on which a rental, usually $1.00 per acre, is being paid, in addition to the bonus or purchase price of the leases themselves, from which the farmers, in thousands of instances, have been able to pay off their mortgages, and improve their farms, while the annual rental, during recent years of crop failures and low prices for farm products, has paid the taxes on their farms and in addition helped to support the farmers and their families. But with prevalent conditions in the petroleum industry, those engaged in the producing branch of the business, having had their resources and income severely reduced, are unable to continue paying these rentals, are surrendering the leases, and the farmers are being deprived of millions of dollars of income heretofore enjoyed by them. Literally thousands of men, formerly employed in and near the oil fields, are now idle, and the community funds raised in the adjacent cities and towns are being called upon to assist them. In addition, the oil men themselves, in some districts where they are still able to raise the money, are contributing funds and, through committees, administering relief to the families of idle oil field employees. How much better it would be for congress to bring relief to the petroleum industry through a measure imposing a tariff on imported crude oil and refined products, which would bring revenue into the federal treasury, instead of by inaction on this measure making it necessary to appropriate millions from the treasury for relief.

It was at one time argued by those importing crude oil into this country that there should be no tariff or other limitation on imports, because the crude oil was brought to the United States and gave employment to American capital and labor. This is no longer true. Royal Dutch Shell has constructed and has had in operation for several years a refinery at Curacao, a Dutch Island off the coast of Venezuela, the capacity of which has been increased in the last year to 250,000 barrels per day, while Pan-American Petroleum & Transport Company, subsidiary of Standard Oil Company (Indiana), has a refinery on the island of Aruba (also a Dutch island off the coast of Venezuela) of 110,000 barrels daily capacity. In addition to these, there are two smaller plants with an aggregate capacity of more than 30,000 barrels per day. Operating on cheap oil produced on the mainland, transported at a negligible cost to the refineries, and with transportation in tankers for the refined products from these huge refineries, the American petroleum industry is no longer able to compete in the world markets with them. He who can not visualize within the

next few years the complete loss of our export market, has little imagination, indeed. The American companies now exporting oil to Europe will continue to export the same for some years to come, due to the fact that they have their own controlled outlets. It is from these refineries that the gasoline and other refined products come, which absorb by leaps and bounds the market formerly supplied by Pennsylvania, New York, West Virginia, Ohio, Indiana, Illinois, California and the great Mid-Continent field, and which has made necessary the proration program and the vast curtailment in the production of the United States.

The Department of Commerce maintains in the capitals and most of the principal cities of the world, commercial attaches, for the purpose of advancing the commercial interest of the United States and a large part of their duties is in assisting to secure additional market outlets for petroleum products produced and refined in the United States. At the same time Secretary Wilbur of the Interior Department and chairman of the Federal Oil Conservation Board, is devoting his energies to reducing domestic production and encouraging these other countries to send their petroleum products to the markets of the United States.

Is the oil industry of this country to continue in the curtailment of production in an ever increasing degree, while the output of Venezuela and other South American countries continues to absorb the domestic market, without paying one cent of taxation to support the government of the United States, the states, or the legal subdivisions thereof, whereas the domestic oil industry is the most heavily taxed of any industry in the United States, paying first in most states a gross production tax of three or four per cent of all the oil and gas produced; a state income tax, a federal income tax, an ad valorem tax, capital stock tax, and other taxes too numerous to mention.

But those engaged in importing oil will contend that there should be no tariff on imports, because our exports of petroleum are greater in value than our imports. If this argument is sound and of compelling force, then congress should, without delay, repeal the tariff bill in its entirety, for on examination we find that on the following products, to-wit, iron and steel, semi-manufactured; steel mill products; iron and steel, advanced manufacture; electrical machinery; industrial machinery; office appliances and printing machinery; automobiles and other vehicles; animal oils and fats; manufactured cotton; manufactures of wood; pigments, paints and varnishes; soaps and toilet preparations; photographic goods; scientific and professional instruments, and musical instruments, the imports during the calendar year 1929 were $172,577,000.00, while the exports from the United States of the same products totaled $1,725,111,000.00. During the same year the foreign value of imported crude petroleum and refined products was $140,966,000.00, duty free, while exports of the same products totaled, in American value, $531,173,000.00. Imports of petroleum, both crude and refined, in 1929, amounted to approximately 110,000,000 barrels (about 10 per cent in barrels of the domestic production), while in 1930 it is estimated that the total number of barrels of imports of both crude and refined products will be slightly in excess of 100,000,000 barrels, and the estimated production of crude oil in the United States for the year 1930 slightly in excess of 900,000,000 barrels. The imports of crude oil in 1930 have been reduced, as compared with the year 1929, but the imports of gasoline and other refined products have been so greatly increased as to displace a much greater amount of domestic crude from the market than was the case in the year 1929.

Secretary Wilbur, in his recent release to the Associated Press, contended that since the imports were only about 10 per cent of our domestic crude production, they were a negligible factor. But it is too well recognized as sound economics to require more than the mere statement thereof that a 10 per cent surplus of any commodity thrown on the market will demoralize completely the price structure of the whole supply, and this is what has occurred in the petroleum industry. A 10 per cent or even a five per cent surplus production of cotton, wheat, corn, or of any manufactured or industrial commodity, has always brought about widespread depression and demoralization in the price structure of the commodity of which there is an over supply on the market. Especially is this true in the case of oil and refined products, when those engaged in producing and refining the same in Venezuela and other South American countries are able, at will, to increase the imports in any amount, so that the threat of the same continually hangs over the domestic market.

At the time of the last reduction in the price of crude oil in the Mid-Continent, which reduction amounted to more than 25 per cent in the then average price, those companies posting the reduced price, accompanied the same with the statement that it was made necessary because of competition. Certainly it was not the competition of domestic production, because at the time of the posting of this crude price reduction, the co-operative movement to curtail production had reduced the same nearly 600,000 barrels per day in the United States; the companies posting the reduced prices for crude oil, after having promised full co-operation in the proration program, betrayed producers by withdrawing from storage 26,000,000 barrels of oil in the year 1930.

In recent months, imported gasoline has been sold in tanker lots in Atlantic seaports as low as four cents per gallon. Certainly it must have been the competition of this imported gasoline that made necessary the reduction in price of the domestic product. This reduction in the price of crude oil was followed throughout the United States by an average reduction in the wholesale price of gasoline (which was not passed on to the consumer) of two cents per gallon. Granting, for the sake of argument, that the difference in values of our imports and exports of petroleum products, and the favorable trade balance of $390,000,000.00 created thereby was all profit, even though that profit went to only four or five huge corporations, and keeping in mind that within the last year the price of 36 gravity Mid-Continent crude has been reduced more than one-third (50 cents per barrel), how long would it take at 50 cents per barrel, with a daily consumption in the United States at the present time of upwards of 2,500,000 barrels of crude oil, to entirely account for said $390,000,000 favorable trade balance from crude oil production alone? And let us also ask how long it would take, at two cents a gallon (the amount of reduction in the wholesale price of gasoline in recent months) with a daily consumption of 1,250,000 barrels of gasoline, to account a second time for said $390,000,000 of favorable trade balance?

While the argument is made that our exports of petroleum products exceed our imports thereof, we find, upon an analysis of the figures, that, taking into consideration the exports from the Pacific Coast, to which there are no imports, or if any, only a negligible amount, that there are more barrels of petroleum products imported to the Gulf and Atlantic ports than are exported from the same ports.

Again it is stated that there should be no tariff on imports of petroleum products because it would be detrimental to

the interests of the consumers, the buyers of gasoline; that the consumers so far outnumber the producers and refiners and those employed in the petroleum industry that their interests are paramount. However, there seems to be little relation between the price of crude oil to the producer in the United States and the price of gasoline and lubricating oils to the consumer. This can be illustrated briefly by referring to the fact that in February, 1926, in 52 representative cities throughout the United States, the average price of gasoline at the filling station, exclusive of tax, was 18.09 cents per gallon, while the average price of crude oil of 36 gravity Baume during February 1926 in Oklahoma and Kansas was $2.04 per barrel. The average recovery of gasoline by the refining methods then in use was 35 per cent, or 14.70 gallons per barrel. In 1929, the average price of gasoline at the filling stations in the same cities, exclusive of tax, was 18.39 cents per gallon, while the price of crude oil of 36 gravity Baume in Kansas and Oklahoma was $1.20, and the recovery of gasoline by improved refining methods had increased to 46 per cent, or 19.32 gallons of gasoline for each barrel of oil. The same relative price schedules obtained throughout the years 1926 and 1929. The price of gasoline to the consumer has not fluctuated in proportion to the price of crude oil.

Cheap imported fuel oil has caused the price of the domestic fuel oil in the refining centers of the Mid-Continent field to fall at times below 50 cents per barrel, thus bringing about a very wasteful utilization of this oil, which might better be saved for higher uses than fuel. This cheap fuel oil, coming into competition with coal, has brought serious distress to the coal industry throughout the country, which industry has been compelled to discharge from employment during the time this condition has prevailed not less than 50,000 American laborers employed in the mines and in the transportation of coal. The unemployment problem, now receiving such diligent consideration by the administration, might be greatly reduced by shutting out imports of cheap fuel oil, allowing the use of coal in many industrial and manufacturing centers, and thus bringing about re-employment of thousands of miners who are now idle.

If the present program of so-called conservation is continued, and results in the shutting down of producing wells, and the cessation of development and exploration work, known oil reserves of the United States will become practically valueless. The present owners, unable to hold the same without receiving any income therefrom, will be compelled to sell them in a market demoralized because of this program. The purchasers who would be willing to buy under these conditions would be the same corporations who control and monopolize the production and marketing of oil throughout the world, outside of the United States. It is acknowledged that there is a world monopoly on oil, outside of this country. The markets of the United States are approximately 70 per cent of the markets of the world for petroleum products. If it is desirable, that monopoly shall securely fasten its tentacles upon the petroleum industry of the United States, with the same grip it holds upon the remainder of the world, and if it is desirable that the consumers of the United States should ultimately pay the same price for gasoline and other petroleum products that are charged in Europe, and other foreign countries, then the so-called program of conservation should be continued, even though it bring utter ruin in its wake to one-fifth of the population of the United States directly, and indirectly and in a lesser degree to the entire country; even though it shall cause an increase in ad valorem taxes in the oil producing states, to make up for the taxes lost from the gross production tax on oil and gas; even though its effect on general business, banking and agriculture, through destruction of consuming power, shall be most serious; even though 20,000 oil producers, individuals, partnerships, and large and small corporations shall be put out of business, and their 800,000 employes and their families compelled to look for work in other lines; and even though the advocates of this policy, in reserving the petroleum resources of the United States for future generations, shall, after viewing the havoc wrought by their program, have a feeling of righteous accomplishment.

I have never contended that a tariff on oil is a panacea for all the ills of the industry. Were imports entirely eliminated we must still proceed with a sane, orderly program of development and operation of our oil fields and by cooperation balance supply with demand as we have so ably demonstrated we can do—as we have done in the past two years.

I would like to say in closing that we should not be discouraged. We have won much support. The whole petroleum industry, the business, and commercial interests; the farmers and the land owners of the oil producing states now present a solid front in demanding immediate relief, and are militantly supporting the program for the exclusion of a foreign oil from the domestic markets, either through the instrumentality of a protective tariff, or if the political exigencies prevent that form of remedy, then by an embargo for a period of years forbidding and importation of oil products whatever.

The directors of the American Petroleum Institute, at its meeting in Chicago, November 10, adopted by a majority vote, a resolution endorsing in principle, a tariff on the importation of crude oil and refined products into the United States. On December 5 at the annual meeting of the directors of the General Mid-Continent Oil & Gas Association, which association embraces the six states of Kansas, Oklahoma, New Mexico, Texas, Louisiana and Arkansas and contains in its membership representatives of most of the producing, refining and marketing interests engaged in business in that district, adopted with only one dissenting vote, a resolution strongly demanding a tariff on oil and refined products, and directing the officers of the association to do everything in their power to secure that form of relief for the industry. The Rocky Mountain Oil & Gas Association took similar action. All local oil and gas associations throughout the country have done likewise. The Independent Petroleum Association of America, with membership in every oil producing state in the Union, is a unit in demanding tariff relief. The chambers of commerce of most of the cities and towns in the oil states have likewise demanded a tariff on oil. A number of state legislatures, which have been in session since the depression in the oil industry has become acute, have memoralized congress for this relief, the latest one to take such action being the legislature of California, early this week. Various farm organizations have taken a decided stand in favor of a tariff on oil.

With this united and determined support, I feel that congress and the administration should and will give heed to our prayers and grant us that protection which only they can grant and thus prevent our complete demoralization and ruin. The historical and statistical facts justify, the social and economic conditions demand this relief. Certainly, with all this before them our government can find a way.

WORLD PETROLEUM IN REVIEW

German Oil Merger Announced

Hanover, Germany.—The Anton Raky A.-G. of Salzgitter, which recently sold its valuable productive territory in the Edesee district to the Prussian government's operating company, has a working agreement with Seigfried Mining Company regarding prospecting and exploiting of the Wathlinger-Hanigsen salt dome, which may be considered part of the Nienhagen field.

This combination of interests has been greatly strengthened by association with the powerful potash-mining concern, Burbach Kali-Werke A.-G., which has brought into the agreement extensive adjoining properties. The latter company thus obtains the benefits of the former company's experience in oil drilling operations.

Maikop and Ural Field Operations

Moscow, U. S. S. R.—Oil deposits discovered recently at Maikop, in the North Caucasus, and those in the Ural fields are the most important of recent discoveries. After preliminary work it has been discovered that these deposits are richer in potential oil recovery than was first thought.

The production program of Maikop Oil Trust fields for 1929-1930 has been increased from 1,008,000 barrels to 3,150,000 barrels, approximately. It is thought that total production at the end of the period of the Five Year Plan, will approximate 28,350,000 barrels rather than the 15,750,000 barrels called for in the original plan.

In order to hasten development, intensive drilling is being carried on, a new railroad is under construction from the Apsheron peninsula to the fields, and a pipe line joining the Grizney-Tuapse line, nears completion.

In the Ural Mountain region, prospecting operations during the past year have completely confirmed the belief of geologists that oil deposits were present in commercial quantity. During the period 1929-1930, the Uralneft Oil Trust drilled near Chusov Gorodki 33 wells; and seven of these contained oil bearing shale, although the content of the shale was not sufficient to warrant commercial exploitation.

During the coming year this company plans deeper drilling, at least below 2500 meters, with a view to finding richer deposits. Ten new wells are planned for this area. In addition, plans call for extensive prospecting in the Altai Mountains and in the Viatka region, where geological surveys have indicated the possible presence of oil.

THE PICTURE—View of Boryslaw District, in Poland.

Polish Oil Industry Threatened

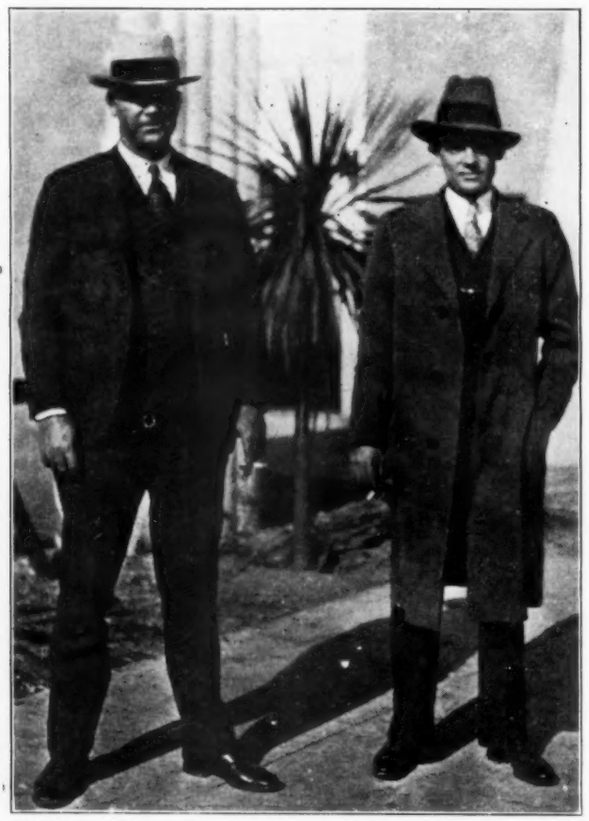
Warsaw, Poland.—As a result of the recent breakdown of the Roumanian proration agreement with its resultant effect on the price of refined oils, the Polish petroleum industry has become extremely disturbed. Polish export prices have recently declined to levels never before experienced, and there is real concern among the leaders of the industry as to what will happen during the next six months as sales on the home market—usually an important sustaining factor because of the high prices obtained—are now much below those of a year ago. In addition, several failures have been reported in the Galician industry, and it is feared that other failures will follow unless a speedy improvement takes place both in export prices and in the volume of domestic sales. Shares of Polish oil companies are practically unsalable.

Hamburg Leading European Oil Port

Hamburg, Germany.—In addition to serving as port of entry for a great part of Central European oil supplies, Hamburg handles approximately 90 per cent of Germany's own imports of mineral oil; the total quantity of all petroleum products dealt with is expected soon to reach the 2,000,000 ton mark.

The petroleum harbor occupies a space of nearly 40 acres on a peninsula in the Elbe, and is easily reached by the largest ocean-going tankers; it is regarded as a model, both with regard to the general layout (the inflammable oil storage being entirely separate) and the extensive safety precautions.

The excellence of the safety measures may be gathered from the fact that, although there is a special fire brigade



G. K. Whitley, driller, and Lee Leissler, head driller, both with Burma Oil Company, in Assam, who are in the United States studying field advancements

attached to the petroleum harbor, it has not yet had to come into action during the two decades of the harbor's existence. The capacity of the storage tanks is 470,000 cubic meters, and the most up-to-date arrangements exist for discharging even the largest vessels with all possible speed; river tankers and rail-wagons, waiting to carry the oil inland, are filled equally expeditiously.

Hamburg not only supplies the interior of Germany directly by rail and Elbe barge, but also sends the oil in coastal vessels to other North Sea and Baltic ports, which supply numerous depots by rail, road, and river.

If in time Germany's increased production of crude and improved methods of refining make it possible for her to provide the bulk of her own requirements, Hamburg is unlikely to forfeit any of her oil trade, as the city is within 100 miles of the Hanoverian oil fields, and forms the natural utilization and distribution center.

It is significant that Rhenania-Ossag, great German Shell organization, this year removed its headquarters from Dasseldorf, on the Rhine, to Hamburg.

Chilean Oil Developments

Valparaiso, Chile. — Presidential approval of a contract between the Chilean government and a Chilean oil prospector by which the latter makes geological prospects of five petroleum zones outside of the Province of Magallanes, Santiago. The prospector agrees to employ foreign geologists at his expense. In the event that no petroleum is found, expenses are for the account of the prospector, while if petroleum is found in commercial quantities the wells are to be delivered to the government after the prospector is repaid for the cost of his studies and development work. The government will then pay him the value of the petroleum produced during alternate quarterly periods during the first two years of operation. Quantities so credited to the prospector's account may not exceed 5000 barrels for each 24 hours, and the price will be the selling price at a Chilean port of consumption, less 10 per cent after deducting the development charges and such transportation charges as the government has incurred.

If the government places a well in full production it will pay the prospector according to the total quantity produced during the three months, otherwise the payment will be fixed by taking the average production measured during any 24 hours.

The prospector will not be permitted to organize a company by shares, although he may associate with any Chilean capitalist in a private capacity.

Australian Oil Shale Developments

Sydney, Australia. — Development of the Australian oil shale industry as a means of providing employment for the thousands of surplus miners in the New South Wales coal fields through the application of approximately $500,000 which the Australian government recently set aside for unemployment aid is the basis of a proposal now under consideration by the federal government in conjunction with the New South Wales government and the New South Wales Miners Federation, according to advices received in the Department of Commerce from Assistant Trade Commissioner H. P. Van Vlarcom located here.

Mexican Production Shows Increase

Mexico City, Mexico.—A slight increase for the production of crude oil in the Tuxpam and Panuco districts is shown in the reports for the week ending January 3. Estimates for the week show a total of 71,571 barrels daily as compared with 71,429 barrels daily for the preceding week. The output of light oil averaged 30,000 barrels daily, against 28,571 for the preceding week while heavy oil production averaged 43,571 barrels daily against 42,857 barrels daily in the week before.

Turner Valley Deliveries Up

Edmonton, Canada.—Deliveries of crude oil from the Turner Valley field for 1930 amounted to 1,314,295 barrels while deliveries for 1929 totaled 981,221 barrels. The increase in the production of crude for this country which has been so noticeable for the past four months is continuing to show further increases. New high record production for December gives an estimated total of 160,775 barrels.

J. W. Fiddler, topographer for Continental Oil Company with headquarters at Monterrey, at work in Nuevo Leon, Mexico

Personal Mention—Men You Know

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John F. Weinzierl contributed the feature of the weekly luncheon of the Houston Geological Society, January 20: a presentation of Franz Beyschlag's "Geological Map of the Earth." Mr. Weinzierl is secretary-treasurer of the Houston Geological Society.

PAUL N. BOGGS
. . . tells Californians they must observe or abandon their proration program

Earl Stone, sales representative for Specialty Oil Tool Company in the Mid-Continent, with headquarters at Oklahoma City, was in Los Angeles for the holidays, finding time to confer with officials of the company as to plans for the next year with indications of increased business in certain specialties.

John Hoffer, deputy oil and gas supervisor of the Texas Railroad Commission in the San Angelo district, has resigned effective February 1, after completing 10 years of service. Hoffer was the oldest deputy from standpoint of service and years, as he will soon celebrate his 71 birthday. In his younger days he served the state as a Ranger.

Dr. E. H. Wells, president of the New Mexico School of Mines, has been appointed state geologist for New Mexico to fill the vacancy created last July by the resignation of C. G. Staley, who became Hobbs field umpire. Dr. Wells will continue his educational duties while serving as state geologist.

G. A. Biesecker, director of sales; John Marshall, technical director, and W. W. Spreng, manager petroleum sales, accompanied by officials and engineers of several of the petroleum companies, just completed a two weeks' field study in the southwest in connection with du Pont A.C.E., protective coating for pipe lines. This study was made to determine the effectiveness of du Pont asphalt chromate emulsion as a pipe coating, and reports indicate that all concerned are satisfied with the results of this investigation.

Ray Sexton, with W. C. Norris, manufacturer, Tulsa, has been transferred back to Fort Worth to fill a temporary vacancy. He has been covering the Tulsa territory for the past year and will be back on his regular job in a few months.

Richard Florian, president of Western Oil & Refining Company of Los Angeles, is on an extended business trip in the Eastern States.

R. R. Wooley, independent operator of California, will visit Washington, D. C. and other Eastern cities within the next few weeks.

P. H. Greer, president of Star Petroleum Company of Los Angeles, will return to California this week, following an extended business trip to New York City and Washington, D. C.

Frederick A. Pielsticker, vice-president in charge of the refining division of Skelly Oil Company, died at Redlands, California, Tuesday, January 13, after an illness of several months. He had made his home in El Dorado, Kansas, since 1906 and had taken an active part in the civic affairs of the city. Leaving there early in January of this year, he had gone to Redlands and was undergoing treatment at a sanitarium when death came.

Mr. Pielsticker was a graduate of Iowa State Agricultural College at Ames, having received a BS. degree in engineering in 1904. When W. G. Skelly organized the Midland Refining Company and Inland Oil Company in 1915, Mr. Pielsticker became associated with him as vice-president and general manager. In 1919 Skelly Oil Company was organized and he became vice-president in charge of the refining division. He was a former director of the American Petroleum Institute and the Western Refiners Association and was widely recognized both for his technical knowledge of the refining industry and his executive ability in the marketing field.

Joe J. Fox has resigned as advertising director of Houston Natural Gas Company, Houston Oil Company of Texas and other associated Buckner companies to become managing editor of the McClure Newspaper Syndicate, New York City, effective February 1. His association with the oil and gas industry less than two years ago was preceded by a wide experience in leading Texas newspapers. For the past year he has served the Houston Advertising Club as president.

E. R. Brown, president Magnolia Petroleum Company, Dallas, has been elected vice-chairman of the board of directors of Standard Oil Company of New York, parent organization of the above company. Mr. Brown has been a director of Standard Oil Company of New York for a number of years. His advancement to a higher office in the organization will not necessitate his removal to New York City. He has been actively engaged in the oil business since 1894, with more than 30 years of continuous service in Texas.

E. R. BROWN
Magnolia president, takes high place with Socony

Fred A. Fortine, vice-president and manager of operations of Barnsdall Oil Company of California, died suddenly at his home in Los Angeles, January 17, following a heart attack. He was 52 years old and a pioneer in California oil circles. He is survived by his wife, three sons, Wayne, Douglas and Dwight; one brother, William H. Fortine, and five sisters, Emma Bergren, Mrs. E. H. Smith, Mrs. C. E. Wayne, Mrs. C. S. Wirt and Mrs. Dora Dresser. He was born in Kankakee, Illinois, and came to California while still a young man.

News of the Natural Gas Industry

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Connecting Gas Line in Mississippi Is Completed

Jackson, Mississippi.—Approximately 15 miles of gas line are now being laid in Hinds and Rankin Counties preparatory to a hook-up of the recently acquired gas line of Southern Natural Gas Corporation by United Pipe Line Corporation, a subsidiary of United Gas Corporation, extending from the Monroe-Atlanta trunk line to Mobile, Alabama, and including branch lines to Bogalusa, Louisiana, Canton, Laurel, Hattiesburg, Gulfport and Biloxi, Mississippi. Formal transfer has been made and Jackson gas will be utilized in this line. Texas Construction Company of Houston has contract for the laying of the gathering system.

Some title work remains to be done before the Mobile extension to Pensacola, Florida, is formally transferred.

Among the independents in the Jackson gas field who have sold their entire gas output to United Production Corporation are Hawkeye Gas Company, Love Production Company, Love Petroleum Company, Iowa Gas Company and Feazel Oil & Gas Corporation. The contracts provide among other things "all of the merchantable gas that may be produced from all wells now drilled or which hereafter may be drilled on the hereinafter described premises during the term of the leasehold or leaseholds thereon or any renewals or extension thereof."

New Gas Producing Area Found Near Weiser, Idaho

Weiser, Idaho.—A large gas well was drilled in on January 10 near this town by Mountain States Oil & Gas Company. At last report no actual gauge of the production had been made, but it was estimated at several million cubic feet. Sand was topped at 1900 feet. This company controls a large block of acreage in this vicinity, and has applied for a franchise in several towns in Idaho and Oregon and may pipe the gas to Spokane. Mountain States Oil & Gas Company is the successor to Crystal Dome Oil & Gas Company which completed a gasser northeast of Payette on September 29 last. It is said that Mountain States Oil & Gas Company is identified in some manner with the Moody-Seagraves interests and a contract for marketing the gas by pipe line.

Discovery of gas in commercial quantities in this district is particularly interesting and important in view of the fact that the area consists of very recent deposits of old lake bed accumulations. A study of the surrounding country discloses the presence of metamorphosed beds with only ash left to indicate that this total destruction of the coal and other organic remains should give at least gas possibilities in high points.

Cheyenne, Wyo.—There is a new proposal discussed here to furnish Cheyenne with natural gas for fuel. The city now gets gas from Texas and Colorado fields, and the new proposal is to supply the city with gas from the Baxter Basin, Baggs, and other fields in Southwestern Wyoming. Mountain Fuel Supply Company, subsidiary of Ohio Oil Company, would supply the fuel at a cheaper price than is now being paid in this city. At the same time, the city of Laramie could be supplied with natural gas. At the present time North Central Gas Company is asking for a franchise to supply Laramie from its Central Wyoming system.

Survey Started for Gas Line from Muskrat Field

Casper, Wyo.—The confidence of North Central Gas Company that the Wyoming public utilities commission will grant it a certificate of convenience and necessity to lay a gas pipe line from the central part of the state to the eastern border is witnessed by its having started survey for the line last week. The request for certificate is now being considered by the commission, and the company has three crews of surveyors at work on the proposed right-of-way. The line proposed would start from the Muskrat field, 75 miles west of Casper, and would have its present eastern terminus at Alliance and its ultimate terminus at Omaha. Distributing systems will be installed in more than a dozen municipalities in Eastern Wyoming and Western Nebraska, besides serving some 11 sugar beet factories.

Wasatch Planning Gas Line From Ogden, Utah, to Idaho

Salt Lake City, Utah.—Wasatch Gas Company of Utah, has obtained a certificate of convenience and necessity from the public utilities commission of this state to construct, maintain and operate gas distribution plants in Boxelder and Cache Counties, Utah. The application was filed in connection with plans of the company to extend its lines from Ogden north as far as Pocatello, Idaho, at a total estimated cost of $3,200,000. The applicants for the certificate were John McFadyen (Ohio Oil Company) of Casper, and L. B. Denning of Dallas, Texas. Construction work, it is expected, will start early in April. Gas is to be supplied from the Baxter Basin, Hiawatha dome, and Clay Basin fields.

San Antonio, Texas.—Texas Gas Utilities Company is moving on for its third of four tests to be drilled in the shallow gas field on the Ike T. Pryor ranch in Zavalla County. The second gasser was completed for 7,000,000 cubic feet about the first of the year. The new well is 600 feet northwest of No. 2. This company has a four-section lease on the Pryor ranch and has a contract with Cribbs and Davidson of Uvalde to drill the tests. This company is supplying the Winter Garden district and Uvalde with natural gas for industrial and domestic purposes.

San Antonio, Texas.—A survey is being made of Skidmore by Texas Natural Gas Utilities Company for the furnishing of that town with natural gas from the Mt. Lucas gas field. The pipe line from that field to Houston passes near Skidmore.

Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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Oklahoma City Threatened With Another Fire Hazard

Oklahoma City.—Considerable excitement prevailed in the north end of the Oklahoma City pool and in Oklahoma City when T. B. Slick Estate's Wespaco 1, SE SW SE Section 34-12n-3w, started blowing wild when an attempt was made to close it in at 9:30 Monday morning, January 19. On December 17 the well produced 11,461 barrels in five hours and was gauged at 55,000,000 cubic feet of gas. It was opened for production early Monday morning but the master gates failed to hold when it was closed in. Operators were fortunate in being able to bring the well under control before nightfall on the same day. It is located only approximately 3400 feet from the Skirvin Hotel and would have been Oklahoma City's greatest hazard had it flown for a long period like some of the recent wild wells. The day was comparatively still and little damage was done during the few hours the well blew into the air.

Eight wells were completed and one location announced during the fiscal week ending Monday, January 19. Phillips Petroleum Company's McAusland 1, SE SE SW Section 10-11n-3w, had base of the Pennsylvanian at 6345 feet, top of the Wilcox at 6359 feet, and an initial production of 8897 barrels in four hours; total depth is 6557 feet. Same company's Burke 1, NW SE SW Section 10-11n-3w, had base of the Pennsylvanian at 6408 feet, first Wilcox at 6428 feet and second Wilcox at 6523 to 6575 feet. Initial production was 2615 barrels in four hours with 12,000,000 feet of gas. The third producer by the same company in the same section was Higging 1, NE NE SW, which had top of the Oswego at 6183 feet and base of the Pennsylvanian at 6365 feet. It produced 7572 barrels in four hours from 158 feet of Simpson formation with top of the Wilcox logged at 6392 feet. Oils Incorporated's Thompson 1, SW NW NW Section 2-11n-3w, encountered the Wilcox at 6242 feet and was drilled to a total depth of 6537 feet where it produced 10,320 barrels in four hours. Slick Estate announced location for its Blevins 1, approximately in the NWc NE Section 10-11n-3w.

Big Concerns Join South Oklahoma Organization

Duncan, Oklahoma.—The constitution of the Southern Oklahoma Oil & Gas Association was revised to permit membership of major organizations at its annual meeting held here Thursday, January 15. Heretofore membership has been restricted to representatives of independent companies. The change also permits anyone whether operator, broker, royalty owner, or others interested to gain admittance.

Resolutions calling on the president and congress to immediately place an adequate tariff on oil imports and thanking the Carter Oil Company, Stanolind Oil Company, Rock Island Oil Company, and Wirt Franklin Petroleum Company for taking over runs which were relinquished by Prairie Oil & Gas Company on January 1, were passed. Thanks were also extended to Ray Collins, state umpire, for his assistance in obtaining such relief. In regard to the proposed increase in the gross production tax the association went on record as vigorously opposing any bill which would bring an increase especially at this inopportune time when staggering difficulties are already confronting Oklahoma oil producers. It has been proposed to increase the rate from three to five per cent. Continuation of state proration was supported.

President H. B. Fell, in his annual report, presented a survey of the economic conditions in the oil industry.

The following officers were elected to serve during 1931: H. B. Fell, president; John B. Cowden, vice-president; and George Gibbons, secretary-treasurer. The directors include: P. A. Shaner, O. V. Beck, Joe Ray, Clifford Moores, Fred Coogan, Don Welsh, Frank Fleet, Sam Emery, Frank Gouin, Jake L. Hamon, Ward Merrick, Jack Travis, and George Strawn.

Latest Kansas Discovery Well Increases Output

Wichita, Kansas.—Skelly Oil Company's Miles 1, cNE NE NE Section 30-27s-10w, new discovery in northwestern Kingman County, Kansas, was deepened from 3393 to 3421, increasing production from 141 barrels on swab to 224 barrels flowing by heads in 12 hours. It will be deepened an additional five or six feet and tested by swabbing. Top of Lansing lime was at 3390 feet.

Eighteen locations were announced in Kansas during the past week as compared to 12 the week before. Stevens and Morton Counties in the southwest corner of the state led with 10 locations by Texas Interstate Pipe Line Company in the Hugoton gas area.

McPherson County was runner up with three locations and Sedgwick, Sumner, Rice, Cowley and Harvey Counties had one each.

Conditions in the Voshell pool have improved considerably since a recent meeting of operators in Tulsa. At that time three producers were without an outlet and Sinclair Oil & Gas Company signified intention of taking 2500 barrels or more daily from its own properties. This required operators to take approximately 19 per cent of the potential which few could do and Gypsy Oil Company, McBride Incorporated and Dixie Oil Company had no outlet. Within the past two weeks three companies have gained a market for part of their allowable although they are far behind in oil allowable under former proration periods.

Early in January, Sinclair Oil & Gas Company had announced that it would take 5000 barrels daily from its own leases or at the rate of approximately 38 per cent of the estimated potential. The company has recently announced that the increase in runs was made with the intention of taking allowable within a few days and that such overproduction would be made up during the proration period. With all operators having outlet and Sinclair Oil & Gas Company's announcement that it would continue to abide by the agreement the chances were good for continuance of proration in that pool.

It has been reported that Sinclair Oil & Gas Company would buy approximately 1500 barrels daily from properties other than its own in the Voshell pool.

Two Small Wells Completed In Wewoka Townsite Field

Tulsa.—Logon Todd et al's Wilson 1, NW NW NE, Section 30-8n-8e, Wewoka townsite pool, topped the Wilcox sand at 4123 feet and had 2500 feet of water which could not be bailed down. At total depth of 4142 feet it had a hole full of water in the Wilcox; it was plugged back to the base of the Hunton where it was bailed down and had nothing showing. When plugged back to 3300 feet, the casing was ripped at 3167 to 3230 feet where it swabbed 50 barrels in 11 hours. It will be shot.

Deep Rock Oil Corporation's 10-acre Douglas 2, NE SW NE, same section, topped the Viola lime at 4142 feet and flowed 56 barrels from the Hunton. It is now drilling below 4144 feet. Same company's 50-acre Douglas 3, SE SE NW, same section, topped the Cromwell sand at 3002 feet and gauged 50,000,000 feet of gas from that formation.

Droppleman, Lack and Whitworth announced location for Lack 2, SW SE NW, Section 30, in the same townsite and range. Payne Drilling Company's Bullock 4, NW SE NE Section 22-6n-3e, on the discovery lease in the Waynette pool, has sand from 3562 to 3600 feet with total depth one foot below the base of the sand. It produced 2278 barrels during the first 24 hours. Sinclair Oil & Gas Company's Caesar 1, NW SE Section 29-6n-6e, an old well, is drilling deeper in the Konowa pool, had the Cromwell sand from 2796 to 2797 feet with initial production of 350 barrels during the first 24 hours. The old total depth was 2769 where it was producing approximately 450 barrels daily. Gypsy Oil Company's Harjo 4, SE NW SW Section 20-6n-6e, was plugged back to 2850 feet where 68 feet of 6⅝-inch perforated liner was set.

SEEK OPEN HEARING ON OKLAHOMA CITY INCREASE

(Continued from page 48)

the amount of distress oil still not cared for. Ray M. Collins, proration umpire for Oklahoma, later sent this report to the committee, reporting the condition as of January 12:

"On this date the total for Oklahoma and Kansas amounted to 22,382 barrels, including not only stripper area under consideration, but all other connections from which Prairie Oil & Gas Company had disconnected as of January 1 and which had not been taken over, up to January 12.

"I wish to point out to the committee that possibly at least 2000 barrels of this distress crude is located in isolated pools, where it would not be practical for any other company than the Prairie Oil & Gas Company to handle same and which will very likely either have to be shut in or abandoned.

"After eliminating production of major companies and that handled as tender shipments, also distress oil listed in areas outside of the so-called stripper area, which will practically all be taken care of by other companies within a short time, this leaves approximately 13,000 barrels or less of this distress crude in the stripper area. This includes 14 counties in Southeastern Kansas and six counties in Northeastern Oklahoma.

"It is my belief that this present 13,000 barrels per day of distress crude in the stripper area will eventually be taken care of through arrangements now in progress; in fact, we anticipate that a considerable part of this amount will find an outlet within the next 60 days."

Since the writing of this report, all efforts to solve the problem of outlet for the small wells have been kept from the public. Press dispatches from Washington last week were to the effect that President Hoover had been promised that this oil would be run but no details were given, other than the statement that the larger oil companies would take the oil. January 19 another dispatch from Washington was to the effect that Ray Lyman Wilbur, Secretary of the Interior, had said that 6500 barrels of the remaining distress oil would be purchased by some of the leading oil companies.

Meanwhile owners of production of this class are considering relief of their own provision. They are contemplating erection of small refining units, to be built near leases left without a market. Such refining units would be of the minature type and their construction is far from assured. But inquiries as to cost have put equipment manufacturers in the field to see if such a move will materialize. Gasoline so made would be marketed by truck in territory near its manufacture. It is significant also that old refining plants, which have been inactive for years, are being considered for purchase.

Committee to Help Oklahoma Legislature on Oil Laws

Tulsa.—The question of oil conservation and proration made its entry into Oklahoma political circles Tuesday through the selection of a committee by Governor W. H. Murray, who instructed the body recommend legislation which would "place the industry on a more satisfactory basis." The committee will, after holding public hearings, report to the governor January 28. Recommendations from the governor to the legislature are due to follow the report of this committee.

C. A. Owens of Oklahoma City, styled a wildcat operator, was named chairman of the committee. He had made a study of conditions in the oil industry for the governor since early December.

Other members of the committee are E. B. Reeser of Tulsa, president of the American Petroleum Institute; William N. Davis of Bartlesville, president of the Mid-Continent Oil & Gas Association; Wirt Franklin of Oklahoma City, president of the Independent Petroleum Association of America; E. B. Howard of Tulsa, president of the Independent Oil Operators of Oklahoma; W. R. Ramsey of Oklahoma City, president of the Ramsey Petroleum Company; H. H. Champlin of Enid, president of Champlin Refining Company; Roy Johnson of Ardmore, independent producer, and Pat Malloy of Tulsa, special counsel of Sinclair Oil & Gas Company.

Personnel of the committee reveals that its membership is made up of those who are vowed adherents to proration, as well as others who are outspoken in their opposition to proration as a means of rectifying the plight of the oil producer.

Part of the statement made by the governor when naming the committee follows:

"Our last laws were enacted in 1915 and since then the industry has expanded greatly and the many changes and contributory factors have possibly made obsolete certain laws and likewise suggested new ones."

Concerning the personnel of the committee he said:

"Four of this committee are executive officers of outstanding oil associations, which includes two representing Standard Oil subsidiaries; two of this committee are independent oil operators; two represent refineries and pipe line companies, and the chairman is free from any selfish interest whatsoever."

A committee study, however, fails to reveal the two who are listed as representing Standard Oil subsidiaries.

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

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Drilling at Long Beach Declines at Rapid Rate

Long Beach, Calif.—The number of drilling wells in the Long Beach field has declined sharply during the past few weeks, having dropped from 125 to 80 since December 15. Completions have not been numerous enough to bring about the drastic drop, the idle column reflecting an increase which largely accounts for the decline. With more than 100 idle wells in the field, only an improvement in the oil market will cause a resumption of normal drilling activity. Refusal of various pipe line companies to offer contracts for future deliveries led to the slump in field operations. Developments during the week were of little importance, the four completions having had a total initial production of less than 1000 barrels. Concentration on the south slope and Los Cerritos districts will result in good completions, while the intermediate zones may yield good wells on the south side. The maximum completion depths which prevailed during the latter part of the deep development are no longer good for a large production.

North Dome Agreement Goes to Operators for Signing

Los Angeles.—The final form of the agreement of the Kettleman North Dome Association has been approved by the committee and will be distributed among the interested operating companies, lessors and royalty owners for signatures. The North Dome committee was in session for more than six months in an effort to arrive at a final draft which would be approved by all operators. Following receipt of the necessary signatures, the agreement will be presented to the secretary of the interior for his approval. At least one company has objected to various phases of the agreement, while several clauses have not met with the approval of individual companies for one reason or another. Although the agreement has been presented in its final draft, actual operation can not begin until all operators have signed and the secretary of the interior has approved it.

Elwood Drilling Activity Has Reached Lowest Level

Santa Barbara, Calif.—Drilling in the Elwood field has reached the lowest level since soon after the discovery well was completed in 1928. Only two wells are active within the proven area, with one project drilling to test an outside lease.

Barnsdall Oil Company and Rio Grande Oil Company, joint operators and joint discoverers of the field, recently re-completed Permit 88-5 with a new initial production of 13,000 barrels from 3455 feet. This well was given a preliminary test late in November and shut in to await a more advantageous time. Gas production did not exceed 6,000,000 cubic feet, making the gas-oil ratio most satisfactory for such a large producer. This well is the latest of a long string of completions which have flowed in excess of 10,000 barrels.

Originally, completions average about 3500 barrels, but a change of production practices sent the average initial production soaring to new heights. Pacific Western Oil Company started a very ambitious drilling program and completed several large wells, but has practically suspended operations in the field. Other tideland operators have no desire to drill additional wells. Due to the expense of building piers, an initial production of at least 500 barrels is necessary to insure a profitable production.

Playa del Rey Production Continues Downward Trend

Los Angeles.—Production has established a definite downward trend in the Playa del Rey field and danger of another rise in the output is very doubtful. After an average of 10 completions per week for six weeks, the number of wells finished has declined sharply and for various reasons present drilling wells are not being placed on production at the expected rate. The total number of drilling wells and the average elapsed time warrant a full quota of completions each week, but the inevitable "tail end" of the townlot drilling campaign is witnessing a struggle to overcome various handicaps and is taking a sizeable toll in the form of mechanical troubles and outright shutdowns.

Wells actually making hole total 50, with less than 12 preparing to start operations. About 30 drilling wells are standing idle, while idle rigs, locations and foundations total 50. The percentage of idle drilling wells to the total number of projects is showing an increase and if it becomes increasingly evident that the late completions will not prove profitable, activity will show a still greater decrease.

Production is coming from 150 wells, the average output being 250 barrels. This is not an extremely small average, since the average initial production did not exceed 500 barrels. There is still a possibility of an extension, but little likelihood of deeper production. The schist body has been found and reports that another zone lies under this questionable formation have not been confirmed.

Weed Patch Discovery Well May Not Be in the Temblor

Bakersfield, Calif.—Reports that Shell Oil Company has found the Temblor formation in Porter-Day 1, discovery well in the new Weed Patch field, have not been entirely supported by cores taken from below 6800 feet, although the hard sand contained oil and gas. The natural desire to tap the Temblor zone, regardless of the location of the test, often leads to premature reports that a new formation is this light oil producing sand. A change of formation at about 6800 feet was regarded as favorable, since oil and gas was present, but the sand did not resemble that found in

the Round Mountain district and was far from that which produces at Kettleman Hills. A close examination of the formations indicates that it may belong to the Santa Margarita, which is above the Temblor of the Miocene group.

Mohawk Oil Company has run a string of 8⅝-inch casing to 4655 feet in Wharton 1, an indirect offset to the discovery well, after plugging back from 5965 feet. Drilling stopped in hard shale and gray sand.

The nature of development at Weed Patch and overproduction of heavy oil do not point to extensive development in the district. The oil contains much more gasoline than the average grades of the same gravity, but leases are largely held in large blocks and little drilling is anticipated.

North Belridge Wells Now Approaching the Temblor

Bakersfield, Calif.—Several wells are approaching the Temblor formation in the North Belridge district and preliminary reports point to a smaller producing area than was indicated by the discovery well.

Ohio Oil Company's Bloemer 1 is checking low on structure, but this does not necessarily condemn the location. Standard Oil Company's McPhail 1, Section 36-27-20, and an offset to Bloemer 1, should also check low on structure. Richfield Oil Company is drilling at 6575 feet in Belridge 1, Section 22-27-20, following an unsuccessful production test between 5580 feet and 5750 feet. Exactly 1000 feet of formation has been opened below the nine-inch casing, but only a small percentage of the total has been good oil sand.

There is some question as to the origin of the water which broke in, but it probably came from around the shoe of the casing. This well is about 1½ miles from the discovery well and is unmistakably lower on structure than the original producer, which has pushed its output to 4000 barrels from an initial of 2800 barrels.

A dozen wells are drilling in the district and the trend of production should be fairly well defined with the present active projects. The structure may prove to be long and narrow, but such a theory can not now be confirmed.

Coal Oil Point Test Still Has Chance of Production

Santa Barbara, Calif.—Bolsa Chica Oil Corporation still has a chance to make a commercial oil well of Permit 191-1, an ocean test off Coal Oil Point, the odds are admittedly greater against a successful completion than they were a month ago. Following an unsuccessful production test at 4191 feet, the company is trying to locate and shut off the water which apparently came from the bottom of the hole. An effort was made to plug off the water prior to the first test, but the difficulty of plugging in a wet sand is well known. The well developed a very high pressure soon after drilling into the Vaqueros zone at 4020 feet and there is some evidence that it may be located on the flank of the structure. The first 50 feet of the zone below the nine-inch shutoff was best, despite reports that the best oil sand was cut below 4070 feet. The inclusion of too much formation apparently led to disaster. The structure is closed, and there is a claim that a closed structure in California has never failed to produce. A large production of natural gas might be classed as a success and maintain the record, but such a development would be of little value at this time and in this location.

TERMS OF KETTLEMAN HILLS UNIT PLAN ARE MADE KNOWN

(*Continued from page* 51)

The plan is receiving strong support from the operating companies because of its many advantages. It will permit a reasonable production of oil from the field without violation of the California gas law. Also, recognizing that some degree of curtailment must be exercised in these times of overproduction, the unit plan permits such curtailment without working an injustice on any operator or land owner due to unfair drainage because under the plan all operators and landowners will be given an undivided interest in the whole field. Lower development and production expense are bound to result and will make operations profitable at times of low prices when under other circumstances operators could not afford to proceed with development and production of the field. Probably the greatest advantages of the plan, however, are the expected increased revenues which will result from better operations. By operating so as to avoid large wastes of gas which under ordinary circumstances would be bound to occur, tremendous revenues from the sale of this gas will accrue to operators in future years. Moreover, the producing of oil at high gas-oil ratios as is being done at the present time will undoubtedly lower the ultimate oil recovery through waste of gas energy and under the unit plan this energy will be controlled and used to best advantage, thereby greatly increasing the ultimate recovery of oil.

Lost Hills Deep Test Is Abandoned in Temblor

Bakersfield, Calif.—Universal Consolidated Oil Company has temporarily abandoned efforts to obtain a water shutoff with the nine-inch casing at 4872 feet in No. 49, a deep test in the southern part of the Lost Hills field, and may core ahead in search of a more favorable formation. This well was the first to reach the Temblor zone in the Lost Hills field and is still considered one of the most important deep tests in the San Joaquin valley. The nine-inch casing was cemented four times, but water broke in during every test. The state mining bureau passed the well for a test, but water broke in after swabbing was started. Some geologists believe that the hot salt water is coming from the Temblor zone, while others are of the opinion that its source will ultimately be traced to a formation above the objective zone.

Failure of the well indicates that the Temblor zone may not be productive over as wide an area as originally believed. The action of the Kettleman Hills field and subsequent discovery of oil in the Temblor at North Belridge influenced operators to conclude that several of the valley fields should produce from the formation.

Universal Consolidated Oil Company's No. 49 is located near the edge of the field and the fact that the Temblor zone was found higher than anticipated still remains an important development. Deeper drilling may disclose a more favorable sand condition, while leases nearer the center of the field may produce in the present zone. Number 49 was deepened to 5005 feet from the test depth of 4911 feet, but no decision has been reached to core deeper. General Petroleum Corporation has located a well on Section 13-26-20 and will test the Temblor for the first time on its holdings.

New Mexico and Rocky Mountain Area

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Neiber Dome Wildcat Will Rig for Below 7000 Feet

Casper, Wyo.—One of the most interesting deep wildcat wells to be drilled this summer is the test for which Ohio Oil Company is now preparing on Neiber dome, in Washakie County, Wyoming. This is to be a test to the Frontier which will be expected around 7000 feet. However, equipment will permit deeper drilling if necessary. The location of the well is spotted on Lot 14, Section 19-45-92, some two miles east of a test drilled several years ago by Midwest Refining Company and abandoned at 4325 feet after having had showings of oil and gas. A large steel derrick is being moved in—the largest ever to be erected in the Rocky Mountain States—being 136 feet high and constructed of special silicon steel. Rotary drilling contract is to be let this month and the drilling started as soon as weather is favorable.

Ohio Plans Exploration In Carbon County Area

Red Lodge, Mont.—That Ohio Oil Company plans extensive exploration in the territory adjacent to its new field in Carbon County, Southern Montana, is indicated by the announcement of the company's acquisition recently of some 16,000 acres of land from Dr. J. C. Siegfriedt of this town and from other land owners in the locality immediately west of the Dry Creek field. The leases cover a district some three miles wide by 10 long, and takes in the Fox and Red Lodge structures. Drilling here, it is believed, would be a little deeper than at Dry Creek where gas production comes from the Frontier around 4485 feet and oil production from the Lakota at 5215 feet. The lease contracts are said to call for drilling early this year.

Plans Made for Geological Survey of North Wyoming

Casper, Wyo.—A plan for a geological survey of structures and resources of Northern Wyoming which was proposed by Dr. W. T. Thom, Jr., of Princeton University, has been considered recently by John G. Marzel, Wyoming state geologists, and various interested persons and groups in both Wyoming and Montana. The plan pursued last year in Southern Montana was participated in by the United States Geological Survey, the geological department of Montana, the Chicago, Burlington & Quincy Railroad, various civic organizations, and Princeton University. The proposed plan this year would extend the work into Wyoming. Work in Montana last year resulted in a number of valuable geological discoveries.

Dr. W. T. Thom, Jr., associate professor of geology, Princeton University, is in the Rocky Mountain States this month conferring with Wyoming and Montana people concerning a survey of natural resources of Southern Montana and Northern Wyoming in the vicinity of Hidden Valley, Badger Basin and Big Horn Basin. Last year Dr. Thom, his students, and associates from various universities in this country, made a detailed study of the Bear Tooth region in Southern Montana. The work was financed by the department of geology of Princeton, several federal government bureaus, and subscriptions from the several railroads and civic associations in Southern Montana.

Oregon Basin Crude Price Accepted by Government

Cody, Wyo.—A price of 70 cents per barrel has finally been permitted by the Secretary of the Department of the Interior on crude oil produced on government owned land in the Oregon Basin field. The previous lowest price permitted by the department was 80 cents and this being prohibitive had brought all drilling in the field to a standstill. It will be remembered that The Texas Company protested this price in the district court of the District of Columbia, obtaining an injunction against the department fixing an arbitrary price for crude petroleum produced on federal-owned leases. Company claimed that the department had no right to fix a price on oil other than its own royalty oil on government leases. Matter was appealed to the higher courts and the decision there was reversed and the Secretary of the Interior was sustained in his contention. Most of the oil produced in the Oregon Basin field is from leases on federal-owned lands.

Sand Draw Test Finds Oil Under "Big Gas" Sands

Riverton, Wyo.—It is reported here this week that Producers & Refiners Corporation has finally succeeded in penetrating all of the "big gas" sands in the Sand Draw field, and has encountered a considerable showing of crude oil at 4228 feet in the top of the Thermopolis formation, or upper sand of the Dakota series, correlating with the Muddy sand. There is a pressure of 2000 pounds per square inch and a considerable amount of gas is evident. A control head has been installed and drilling will not be resumed until heavier equipment is on hand. Successful production of oil in the field from the deeper horizons will result in much deeper drilling in other Fremont County fields.

Casper, Wyo.—No new developments or discoveries are reported from the deep test wildcat being drilled on Geary Dome, 12 miles east of Casper, by Midwest Refining Company and associated interests. The well last week was coring at 4925 feet in a sand which was showing a little water, but nothing else. Bit is working in the first Wall Creek sand in the Frontier formation which was topped at 4863 feet. This horizon will be cored entirely through and then the second Frontier, which is producing at Midway dome, will be tested. If these sands both prove unproductive, the test is to be carried to the Sundance and the Lakota series.

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

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Big Lake Deep Production Enhanced by Good Producer

San Angelo, Texas.—Record depth production offered by the Big Lake field assumed greater importance January 14 when Group One Oil Corporation's University 4-B was brought in under perfect control flowing 170 barrels of 58 gravity, 40° temperature, per hour, with heavy gas production, from lime at total depth of 8587 feet. The first full daily gauge, ending 7 a. m. January 16, showed a recovery of 4533 barrels pipe line oil and 54,000,000 cubic feet of gas, with a back pressure of 400 pounds on the casing. A steady production increase has followed, and during the 24-hour period ending 7 a. m. January 19 the well produced 5354 barrels oil and 62,404,000 cubic feet of gas against 600 pounds back pressure. Increased yield of oil and gas for a long period after completion is a common occurrence among the record depth wells in this field, which is now definitely a rival to the Kettleman Hills field in production performance, if not in potential oil area.

Tubing is to be installed in this new deep well completion in order to lower the gas consumption in accordance with state conservation rules, and also to retard oil production, as the company is approaching its maximum daily quota on contracted crude committments, which involves the life of the property.

Group One Oil Corporation is controlled by Continental Oil Company, and in drilling its fourth successful completion to the deep horizon established a record for drilling time, as University 4-B was spudded with rotary 7 p. m. September 1, 1930. Rotary was used entirely, and the well was on production in an elapsed period of four months and 13 days, although time was lost for the cementing of three strings of casing, including seven-inch pipe at 8030 feet. Loffland Brothers, Tulsa, drilled the well on contract.

Group One Oil Corporation's University 1-B, which uncovered the deep horizon in late November, 1928, continues to flow an average of 2800 barrels oil and 21,000,000 cubic feet of gas daily at 8523 feet, and at the close of 1930 had yproduced a total of 1,963,784 barrels of oil. Rock pressure on this well was increased from 165 to 225 pounds January 8, although it has open hole below 6176 feet, where a string of second hand 5 3/16-inch pipe was cemented. The condition of the casing in this hole creates a dangerous hazard should the present owners attempt to install more casing, or a string of tubing.

Development of the 8489-8923-foot horizon is at a standstill in the Big Lake field with the new completion, except for the workover job being done on Group One Oil Corporation's University 2-B. The latter was killed at 8489 feet early in December, 1930, to deepen, install a string of seven-inch pipe and also tubing. Drill stem twisted off in trying to reach bottom, and the owners are now cutting off the stem and recovering a few joints at a time below 5974 feet. The last casing used in this hole consisted of 9⅝-inch pipe cemented with 1000 sacks at 5914 feet.

Installation of a combination string of three and four-inch tubing was nearing completion early this week on Big Lake Oil Company's University 5-C, with 100 joints of the smaller size on bottom. This well was completed with a total depth of 8718 feet on the morning of December 30, 1930, making 38 barrels per hour of 53 gravity, 48° temperature, crude, and has registered a constant gain in oil and gas production until the close of last week, while tubing cut down the volume. Five deep wells of the Big Lake Oil Company were averaging 8474 barrels daily early this week, while the three deep wells on production of the Group One Oil Corporation contributed 9788 barrels during the same period, making a total of 18,262 barrels of high gravity oil daily.

Production from the eight deep wells in the Big Lake field for the 24-hour period ending 7 a. m. January 19, 1931, is listed below:

	Oil Production	Gas Production	Pounds Casing Back Pressure	Pounds Tubing Back Pressure	Total Depth
Group One Oil Corporation—					
University 1-B	2817	20,143,000	225	....	8523
University 2-B	(‡)	.....	...	....	8489
University 3-B	1617	17,956,000	1500	1000	8633
University 4-B	5354	62,404,000	600	....	8587
Big Lake Oil Company—					
University 1-C	1525	6,305,000	275	....	8668
University 2-C	2035	19,455,000	1650	450	8603
University 3-C	156	1,077,000	800	....	8923
University 4-C	2867	15,430,000	1450	700	8697
University 5-C	1891	18,845,000	340	(*)	8718

(‡) Killed to deepen, case and tube.
(*) Running combination three and four-inch tubing.

Sullivan Area Completion Revives Operators' Hopes

Amarillo, Texas.—A series of disappointments met with by operators in the Sullivan area, western Gray County, in trying to pick up prolific production in the 3000-foot horizon was checked during the past week when Skelly Oil Company's H. Heitholt 1 flowed 350 barrels 42 gravity oil per hour from granite wash formation at 2995-3001 feet. This unusual completion was made after eight other nearby tests missed the heavy producing horizon and furnished small wells in the lower lime. The Sullivan area was ushered in middle September, 1930, when the wildcat test of Taconian Oil Company (now J. T. Harrell et al's) Sullivan 1 blew in with an estimated initial yield of 10,000 barrels oil and 59,000,000 cubic feet of gas at 2990-98 feet.

Lack of storage and a pipe line connection necessitated the pinching of Skelly Oil Company's Heitholt 1 to 10 barrels per hour after taking a brief gauge. It is located in the east corner of the 122.8-acre triangle shaped lease lying north of the railroad in Section 153, Block 3, I.&G.N. Survey, or about one-half mile northwest of the discovery well. The gas flow accompanying the oil production from the Heitholt well is estimated at 30,000,000 cubic feet daily.

East Central Texas Field Notes

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Proration of Rusk-Gregg County Area Is Planned

Tyler, Texas.—Appointment of a committee of operators and interested business men in Central East Texas to work out a proration plan for the Rusk-Gregg Counties district is to result from a general meeting held here on the night of January 15. State Senator Tom Pollard presided at this meeting, and is heading a committee that will nominate the group that will be assigned the task of perfecting a suitable proration program. The personnel of this proration body will be announced early this week, and plans are to attempt to start action immediately, as delays make the task greater.

Proration of Central East Texas fields along with other areas in the interior section of the state was included in the general proration order issued by the Texas Railroad Commission November 25, but enforcement has been delayed until production reached a sizeable volume. Rusk County producers and crude purchasers have been disregarding this order, as a rule, in making contracts that conflict with the official order. In the event proration enforcement by the Commission is sustained by the courts when a test case is made February 2 in the instance of Danciger Oil & Refining Company's injunction suit, such contracts can be voided.

The Tyler mass meeting was heralded in advance as a anti-proration session. Those opposing restrictions of any kind on drilling and production were in the majority, although many present were not directly identified with the oil business. The campaign against proposed restrictions in the district has been waged by Carl Estes, Tyler newspaper editor, and he sponsored the meeting, as well as acting as spokesman for his followers.

Robert R. Penn, Dallas, chairman of the ceneral proration committee for Texas, attended the meeting. Penn made a short talk on the purpose and results to be gained by introducing a systematic method of drilling and producing oil in the district. Penn and Estes agreed to place the proration matter in the hands of the general committee of local citizens and oil men before any definite action is taken.

Announcement was made at the meeting in the form of a letter from W. S. Farish, president Humble Oil & Refining Company, that the latter would build a pipe line into Rusk County to gather and purchase crude equally from independent operators in the event an orderly development campaign is initiated.

Announce Offset Locations To Bateman-Kilgore Well

Tyler, Texas.—Forecasted locations for the Bateman-Kilgore area began putting in their appearance during the past week, and more than a half dozen reasonably close tests are being started. In the meantime Humble Oil & Refining Company is winding up title work to pay off Ed. W. Bateman and associates for full possession of the discovery well and about 1400 acres of surrounding leases for $1,500,000 cash and $600,000 payable from oil. Details on this pending trade were published last week. While this trade is in process of completion the well is being kept shut in, and only a 40-minute initial open flow test has been given the producer, which flowed at rate of 900 barrels oil per hour on December 28 at 3640-52 feet.

John W. Olvey and Eddie M. Jones were under way on their first tests, which provide south offsets to the Bateman drilling block. Jones sold a half interest in his acreage to Houston Oil Company, and the latter contracted to market the oil as produced. Houston Oil Company is at work on a gathering system to handle the oil as available, with deliveries to be consigned by tank cars to its Camden, Arkansas, refinery.

Walton et al have made two locations along the south line of the Bateman block, and due west of the above two operations. Walton and others have the west 50 acres of the Brightwell 100-acre tract.

Karona Oil Company, Refugio, has staked two locations to be drilled in the northwest and northeast corners of its J. N. Peterson north 15 acres of the west 25 acres of the 50-acre farm, thus giving two offsets for Magnolia Petroleum Company's 50-acre lease, which adjoins the Bateman block on the south.

Blair and a group of Wichita Falls associates are moving in materials to drill on their B. F. Laird 65-acre lease, which edges into the north portion of the Bateman block.

Other locations have been made to the west and northeast of the discovery well.

Shippers and Buyers Lead Producers in Rusk County

Tyler, Texas.—Prospective shippers and buyers of Rusk County crude are getting the jump on the producers, and a greater number of field gathering systems have been completed, or authorized for immediate construction than the total number of producing wells in the county. This wholesale invasion of a large potential source of high gravity sweet oil production with tank car loading units is of far reaching importance, as producers and prospective ones are already making crude contracts involving prices per barrel at the well that hardly equals the average lifting cost of a barrel of oil in all old fields in the Southwest. Such price concessions are being made to force a market outlet regardless of the adverse consequences that are sure of following in the general price structure, while those opposing such practices are almost certain to be drawn into the scramble as a protective measure. Rail traffic congestion on inbound and outbound tonnage over the lone railroad near the two fields may become a greater factor in retarding production than the proration efforts of the state.

Humble Pipe Line Company is quite certain to invade the Bateman-Kilgore area with a branch off its Van field 10-inch trunk line, with possibilities of an extension on south to the Joiner field. In the meantime other pipe line companies are awaiting developments, with Magnolia Pipe Line Company, The Texas Pipe Line Company, Gulf Pipe Line Company and other likely prospects. The former is apt to be forced shortly as direct offsets are being drilled against acreage held by Magnolia Petroleum Company in the Bateman-Kilgore area. Humble Oil & Refining Company is winding up title work this week to consummate its purchase of the discovery well of the Bateman-Kilgore area,

while its pipe line subsidiary has arranged for a new pump station site and tank farm on the Van line near Longview, located northeast of the field.

Facilities for gathering and loading Rusk County crude in tank cars are already in sight for the handling of a greater volume of production than the existing market promises to absorb. However, actual tank car shipments are averaging only about 3500 barrels daily, and the bulk of this supply is obtained from the western outpost well of Frank Foster-Deep Rock Oil Company et al in the Joiner field, with deliveries going to plants of the Louisiana Oil Refining Corporation near Shreveport on a short time contract.

Missouri Pacific Railroad enjoys a monopoly on the current and prospective tank car shipments from Rusk County, and made a bid for the transportation business last December by posting a tariff of 10 cents per 100 pounds on crude moving to Shreveport and other northeastern Louisiana points and 11 cents to Gulf Coast points. The latter points involve crude consigned for coastwise and export movement, with a slightly higher rate on domestic hauls. A rate of 15 cents per 100 pounds applies on Rusk County crude moving to El Dorado and Smackover, Arkansas, refining centers, but this may be lowered later. Tank car deliveries of crude to Dallas and Fort Worth plants involve a 13 cents per 100 pounds tariff.

First entrant into the Joiner field with a gathering line was Panola Pipe Line Corporation, which began operating a three-mile, four-inch line from a point near the discovery well to a 15-car capacity rack, located northeast of the field. Headquarters of this concern are located at Henderson, Texas, and the principal stockholders are H. L. Hunt, O. W. Hardin and Fred Taylor. Crude shipments have been light via this system because of its well connections having obtained a local market for fuel oil, while actual rail movement has been restricted to storage tanks at Shreveport.

Tidal Plans Gathering System in Joiner Area

Tyler, Texas.—Tidal Refining Company is expected to be one of the first of the larger units to invade the Joiner field with a gathering system for servicing the leases of Tidal Oil Company et al, as the latter is moving in materials to start development work immediately on a 15-acre lease, located a short distance north of the largest producer in the field. Tidal Refining Company will consign its takings to Gulf Coast for movement via tankers to its affiliated refining units on the Atlantic Coast. G. L. Rowsey, who recently completed a skimming plant at Taylor, Texas, is also to invade the Joiner field with a gathering system as result of having made tentative arrangements to install a small refinery on the railroad near the field. Indications are that a half dozen topping plants will be erected in and near the two Rusk County areas by groups of independents that have been identified in previous years with such projects in flush fields offering a supply of cheap priced crude.

Shreveport.—United Production Company's Baker 1, B. C. Jordan Survey, Panola County, East Texas, Monday, January 19, tested 15,000,000 cubic feet and a spray of salt water in the upper Trinity at total depth of 4720 feet. Nine-inch casing had been cemented at 3450 feet and 6⅝-inch at 4575 feet. The well if completed at present total depth will be the fourth Trinity zone gas producer for the Bethany field.

Delivery of Joiner Crude Awaits Completion of Line

Tyler, Texas.—Delivery of high gravity crude from the Joiner field to the Warners, New Jersey, skimming and cracking plant of the Warner-Quinlan Company is to occur when Petroleum Marketing Corporation, a newly created subsidiary of the above concern, completes its gathering system and tank car rack about February 1.

Warner-Quinlan Company operates in Texas through producing subsidiaries known as Warner-Quinlan Company of Texas and Texas-Unity Oil Company, both having headquarters at Houston. J. C. McIntyre is president of the latter two organizations.

Petroleum Marketing Corporation began construction work January 14 on a 25-car capacity rack, located northeast of the Joiner field and about six miles southeast of Overton, with plans to later double the size of the rack. Ten miles of six-inch main line system is being built from this rack to the western part of the field, with two and four-inch lateral lines extending to leases to be served. This system is expected to have facilities to handle 20,000 barrels daily. A contract has been made for the purchase of 100,000 barrels of crude from the jointly owned lease of Bert Shaw Oil Company and the Imperator Oil Corporation, and other contracts are pending.

The Warner-Quinlan interests have acquired leases in the Joiner and Bateman-Kilgore fields, and plans are to develop these in the near future, although a separate system would be necessary to handle crude from the latter area.

Gregg County Well Awaits Drilling of Cement Plug

Tyler, Texas.—Gregg County's bid to share in the oil development work that has been gaining in volume each week in the Joiner and Bateman-Kilgore areas, Rusk County, will be given a showdown middle the present week by the drilling of cement plug in the Pine Hill test. Trading in leases and royalties in general vicinity of the Gregg County wildcat test of W. A. Moncrief-J. E. Farrell and Arkansas Fuel Oil Company's F. K. Lathrop 1 has been very active since the discovery of a 10-foot core of sand showing oil saturation in the morning of January 20 at a total depth of 3580 feet. A string of 6⅝-inch pipe was cemented at 3560 feet, while in the meantime major companies and independent operators are expecting it to make a producer at the present depth, which has been corrected by steel line measurement.

Since the Pine Hill drilling block promises to produce from the same formation and virtually the same depth as wells in the Joiner and Bateman-Kilgore fields, operators are now anticipating a direct connecting link being later established between the three areas. The Bateman-Kilgore producer is located 10 miles north of the biggest producer in the Joiner field, while the Gregg County test is about 13 miles to the northeast of the former, with no failures in between.

Tyler, Texas.—Houston Oil Company's construction force began breaking ground January 14 for the immediate installation of a pipe line gathering system and tank car rack near Kilgore on the Missouri Pacific System in order to carry out a crude marketing contract assumed with the company's purchase of a one-half interest in Eddie M. Jones' leases and drilling test in the Kilgore-Bateman area. This company will use six-inch pipe in its system, and a 15-car capacity rack. The crude will be transported by rail to its 5500-barrel daily capacity cracking and skimming plant at Camden, Arkansas, on the St. L. & S. W. Railroad.

EAST TEXAS CROSS SECTION OFFERS INTERESTING STUDY

(*Continued from page 34*)

From the standpoint of stratigraphy it is at once clear that the Woodbine and "Woodbine" are, with one exception, basal Upper Cretaceous, but the Tokio is not so stable. One author places it as of Austin age, another in Eagleford time and still another in the true Woodbine column. Does it not seem logical therefore that we should follow our formations from their type localities and see where they lead us rather than attempt to correlate a bed of questionable age with some known horizon? If it is found that Woodbine, "Woodbine" and Tokio are synonymous terms, the committee on geologic nomenclature can definitely assign it a name and terminate the uncertainty. On the other hand if they are not synonymous then they can be definitely separated and assigned to their proper places in both the Texas and the Louisiana geologic column. It seems clear that careful paleontological work, coupled with just as careful stratigraphy, is going to be a very important factor in the final solution.

One important change in the geology of East Texas has already been made. It was formerly thought that the Annona chalk was the correlative of the Austin whereas it is now correlated with the Pecan Gap.

East Texas Structures

The sub-surface structure of the East Texas basin can, as yet, be only generally outlined. Localization of these structures will have to await the drilling of more wells in this region. At the present writing it is very questionable whether surface structures are going to "prove out," especially in certain parts of the basin. In several instances wells drilled on good surface structure have run low on the Pecan Gap and lower formations and in other instances they have run high but have been unproductive.

The structure of the Van field is, so far as we now know, an unusual occurrence. The surface in this field is somewhat higher topographically than the surrounding country and the Reklaw and Carrizo beds swing to the eastward around it. The Woodbine sand, however, has nearly two thousand feet of west (reverse) dip at this place. Something on the same order takes place at Blackfoot where the Roeser & Pendleton's Moody 1 had but 99 feet of Eagleford shale and Humble Oil & Refining Company's McGaffery 1 had more than 600 feet of the same formation, thus giving the Woodbine a west dip of about 500 feet between the two wells.

Importance of Geology

It is quite apparent from past experience that not the least important item in East Texas is good geology. Mexia, Currie, Richland, Powell, Carey Lake, Nigger Creek and Van all resulted from the application of geologic information. The only one of these on which the writer has first-hand information is Van and the science of geology as practiced by Pure Oil Company's Texas geological department has never shown to better advantage than here. They stepped out a long way from production (or even any dry holes) but their work was so well done that they "hit" the first time and have been going good ever since. The preliminary work was costly, it is true, but that is now a very small item compared to what the results have been. Geological work is still just as important in that field as it was before the first well was drilled.

The aspect of geological work in the Gregg-Rusk area still remains to be proven—as to whose map is most nearly correct, if any are, as to details. Two possibilities present themselves here. Firstly; it is possible that one long pool may develop along the flank of the Sabine Uplift or, in other words, production may be secured almost regardless of structure so long as the wells are placed a certain distance back from the pinch-out of the Woodbine sand. Secondly; the area may develop into a series of separate pools at intervals along the flank of the uplift. If the latter proves true there will likely be a zone of structures which will have production on their flanks but will be barren on the tops due to the absence of the sand. Basinward structures would then prove the most prolific and also the least treacherous.

East Texas Oil Discoveries Accelerate Lease Activity

Marshall, Texas.—Encountering the Woodbine sand in paying quantities in two tests in Rusk County, one near Henderson and one near Kilgore with the subsequent rich oil core secured in the same horizon in Farrell and associates' Lathrop 1, William Robinson Survey, Gregg County, has stimulated a play in leasing through Harrison and Marion Counties, the lessors apparently working on the geological theory that this Woodbine formation links up with the Tokio (commonly designated Woodbine) in the Pine Island and Dixie fields of Caddo Parish, Louisiana.

Practically the entire western part of Harrison County is under lease at present and the western part of Marion County is coming in for a big play. On the geological data now known the eastern shore line of the Woodbine where it folds up against the lower Cretaceous presumably sweeps in a semicircular manner through Rusk into Gregg, Harrison and Marion Counties. It is known that the Woodbine is absent immediately at Marshall, but tests drilled a few miles north show it to be present. The shore line then turns southeast into Louisiana, it is believed.

Among companies having blocks in the western part of Harrison County are The Texas Company with approximately 3500 acres, Corona Petroleum Company of Tulsa with 4000 acres and S. D. Hunter and associates with 16,000 acres. The Hunter interests are reported to have taken entire control of the block on which Shell Rock Petroleum Corporation has been engaged in drilling a test in Daugherty 1, W. B. Burris Survey, and are arranging to abandon this hole at 3568 feet and skid over for a new hole.

Hindman and associates during the last week erected derrick for Lindsey 1 in the Alex Albright Survey on a block of several thousand acres. Rondeau and Hindman have also erected derrick on their location made the preceding week for McGaughery 1, W. J. Wills Survey, Marion County, both in the southwest part of the county.

Two wildcats in Panola County created some interest during the last week. Creighton and Hart's Kyle 1, J. Tippett Survey, which has been shut down in lime at total depth of 3704 feet, surface elevation being 349 feet, blew out mud, gas and brackish water when opened. Efforts are now being made to clean out and set casing as there is open hole all the way down from surface casing. This test topped chalk at 1444 feet and topped the Blossom sand at 2216 feet, encountering a broken lime and sand formation at 2600 feet from which the water may be coming.

Considerable gas pressure and a show of oil were encountered in Sam Bell and associates' Burnett Lumber Company 1, S. B. Hendrick Survey, with the well encountering a thin stratum of green lime at 2917 feet early last week and consideration was given of making a drill stem test. However, this idea apparently was abandoned as the test Saturday, January 17, was drilling shale at 2924 feet, 8⅛-inch casing having been set some time ago at 2027 feet.

Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

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Establishes New Deep Zone On Esperson's West Flank

Houston.—A new deep producing horizon was established January 18 on the west side of Esperson field, Liberty County, when Cranfill-Reynolds Company's Esperson 5 came in flowing gasoline and large volume of gas from 6711 feet. During that night the well yielded 100 barrels gasoline, and the gas flow was estimated to be at the rate of 10,000,000 to 20,000,000 cubic feet daily, the well producing through a one-quarter inch choke and showing 580 pounds pressure.

Location of this well is 400 feet east of Esperson 6, and it is near the center of the west line of the C. W. Fisher Survey. Former production in this part of the field has been from around 2300 feet, although small oil production has been found below 7000 feet on the east flank of the field.

On the east flank Yount-Lee Oil Company's Moores Bluff 3, which was drilled to 7825 feet, has been plugged back and completed as a small oil well at 2825-35 feet. It is yielding 22 gravity oil.

Four South Louisiana Tests For Sulphur are Abandoned

Houston.—Two sulphur companies are engaged in testing several South Louisiana salt domes for their possibilities of commercial sulphur production, and during the past 10 days four wells on the crests of three domes were abandoned.

On Napoleonville dome in Assumption Parish, Texas Gulf Sulphur Company abandoned Dugas & LeBlanc 4 in Section 46-12s-13e at 650 feet in cap rock, and No. 5 on the same lease but in Section 41 was abandoned in salt at 700 feet. The same company's Wilbert 7 at Bayou Choctau dome, Iberville Parish, was abandoned at 675 feet in cap rock which had been penetrated approximately 100 feet. While Texas Gulf Sulphur Company has the sulphur rights on the above two domes, the oil rights are held for the most part by Gulf Refining Company of Louisiana.

Freeport Sulphur Company, holding the sulphur rights on Shell Petroleum Corporation's leases which practically cover Black Bayou dome, Cameron Parish, has abandoned Yount-Lee 6 in Section 7-12s-12w at 1225 feet in cap rock which was first encountered around 900 feet.

Plan Second Bloomington Area, Victoria County Test

Houston.—A second attempt will be made by The Texas Company to establish production in the Bloomington area of southern Victoria County. The company is building derrick for its McFaddin 2, which will be the most westerly test of the field, its location being 9150 feet south and 200 feet east at right angles out of the northwest corner of the C. M. B. Hoyd Survey.

This location is approximately 1½ miles west of the same company's McFaddin 1, which was recently abandoned at 6675 feet after testing dry or showing salt water through drill stem from various horizons. McFaddin 1 was itself about two miles west of the Bloomington area discovery gas producer, being in the Hannibal Bonney Survey, and although it encountered a sand at 3700-3720 feet which apparently corresponded with the producing horizon of the discovery well, it only showed a slight amount of gas along with salt water when a drill stem test was made.

Barbers Hill Well Makes 2000 Barrels Through Salt

Houston.—A 626-foot thickness of salt was penetrated on the south flank of Barbers Hill dome by Sun Oil Company's Chambers County Agricultural Association 7, which came in the past week as a 2000-barrel flowing well after setting of three joints of screen at 4583 feet. Top of the salt was between 2425 and 2466 feet, according to different reports, and the bottom of it was at 3092 feet. Production is 27.5 gravity pipe line oil, and the well showed 225 pounds pressure, flowing through a one-half inch choke. Other completions at Barbers Hill the past week included The Texas Company's Winfree 1, which came in flowing 1200 barrels 32 gravity pipe line oil daily through a one-half inch choke from 5488 feet, and Yount-Lee Oil Company's Hindman 1, a 150-barrel well at 5819 feet, although the test had originally been drilled to 6800 feet.

Further Extensions Likely In Refugio Producing Area

San Antonio, Texas.—Further extensions to the Refugio field, Refugio County, are in prospect with several wildcats showing up for production. Probably the most important of these is Houston Oil Company's Rooke 1-B, southwest deep flank of the Refugio field, which has a sand at 6186-94 feet. Four attempts have been made to get a drill stem test, but each have been practically unsuccessful. The showing, however, has been sufficient to prompt the company to run a string of casing into the hole preparatory to completion.

Should the Rooke 1-B come in as a producer, it will materially enlarge the producing area of the Refugio deep sand, there being only one other well in the deeper strata of the southern flank. It is the Moody-Seagraves' St. John 1-A at 5490-5500 feet.

Three miles west of the townsite, Morgan & Rutherford's Rogers 1 tested salt water and some oil at a total depth of 3684 feet. It is one-half mile north of the L. L. Smith producers recently completed on the Rogers land. Smith is preparing to drill his Rogers 2 deeper to test the lower formations on his lease. The well has been showing considerable water in the 3600-3700-foot formation. These wells are in the original gas area.

South Texas Field Developments

EARL POST, *Staff Correspondent, San Antonio, Texas*

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Edwards Plateau Well Now Flowing 100 Barrels Daily

San Antonio, Texas.—Evans and Gant's Love 1, discovery well in the lower Edwards Plateau area of Kerr County, is reported to be flowing by heads, yielding around 400 barrels of fluid daily, of which about 300 barrels is salt water.

The well recently was completed as a pumper making from 38 to 45 barrels of oil and about three times as much salt water at 3374-3391 feet. The gas flow was said to have shown an increase early January 16 and during the day the well began flowing by heads. The production is said to have shown a slight increase.

Love 1 is located about 45 miles west and slightly south of Kerrville near the Real-County line in Section 1594 of the C.C.S.D. and R.G.N.G. Railroad Survey.

New locations continue to be made in the area of the new producer. Evans and Gant's Estle Young 1, is to be drilled in the northwest corner of Section 28, a short distance north and slightly east of the Love well. The same operators' Seiker and Mears 1, three miles northeast of the Love well on Section 1605, is moving on. A steel derrick is to be used. Both wells are located in Kerr County.

In Real County, Evans and Sprinkle's Haby 1, seven miles south of the discovery well in the southwest quarter of Section 175, A.B.&M. Survey 17, is preparing to set casing at about 400 feet. This well was formerly known as that of the McGinley Corporation. Their Marcus Auld 1, five miles northwest of the Love producer in Section 15, Block D, H.E.&W.T. Railroad Survey, is down 300 feet and in a sandy limestone formation. Preparations also are being made for moving onto Gant and Kilgore's A. D. Auld 1, in the southwest corner of Section 23, south of the Love test.

East Extension to Pettus Area Fails to Materialize

San Antonio, Texas.—An eastward extension of oil production in the Pettus district of northern Bee County has failed to materialize. The prospective extension well was United Production Corporation's Ray 26. It showed up for a good oil producer in a sand cored at 3941-51 feet, but came in as a gasser, spraying gasoline.

The well is located 1000 feet due east of the Ray 14, which made 576 barrels of oil initially on a 3/16-inch choke. It is also about the same distance east of the Ray 5, which gauged 1950 barrels on a 9/32-inch choke when first completed.

The formation cored in this well was so interesting that drillers were ordered to set a string of casing on top of the pay without making a drill stem test. It struck the sand about the same level as the other producers in the eastern section of the field.

The Ray 26 is showing about 900 pounds pressure on the casing through a three-eighths-inch choke.

This gasser, however, turns additional interest to the east of the Pettus field across the Goliad County line, where United Production Corporation is drilling its Ray 28 at 1688 feet in shale and lime.

Three and one-half miles southeast of the Ray producing area of the Pettus field, E. S. Price is still attempting to test a sand at 4537-46 feet. On three attempts, the seat on the tester failed to hold. The well is Weiss 2.

The deepest well being drilled in Bee County at this time is the joint test of Moody-Seagraves-Morgan and Independent Oil & Gas Company. The well is Welder 1, 12 miles southeast of Beeville, and is down approximately 5000 feet, where several cores are being made.

Successful Caldwell County Completion Holds Interest

San Antonio, Texas.—A bit of excitement was aroused in the Lockhart area, Caldwell County, last week when reports were current that the J. E. Mills et al's S. F. McMahan 1, probably would make a small producer at 2160 feet.

The well is located 270 feet from the north line and 70 feet from the west line of 50-acre tract in Pinchback Survey, nine miles southeast of Lockhart. The well is said to be just to the east of the fault line, as are the Luling, Salt Flat (Bruner), and Darst Creek fields. The well recently had considerable trouble with a fishing job and a real test of the possible production was delayed until several days ago.

Zapata County One of Most Active Areas in South Texas

San Antonio, Texas.—Zapata County is one of the most active areas in South Texas with 26 operations reported. The major part of the drilling is in semi-wildcat or wildcat territory.

The most active field at present is the Muckelroy extension to the Jennings pool, where nine operations are wells drilling or being completed. There were two producers added to this extension pool during the week ending January 15. These were J. I. Newton's Trevino 1, which made 25 barrels daily at 1259-1277 feet and S. R. & C. Oil Corporation's Trevino 11-A, which made 50 barrels at 1257-1286 feet. Nordan and Morris made location for E. B. de los Santos 3 on Share 7, Fansler Partition, Comitas Grant. It is 534 feet from the northeast line and 1950 feet from the southeast line of the tract.

In the edge of the Muckelroy extension pool, J. H. Winch seems to have found a second producing sand in Alehandro Bustamante 3, which tested 30,000,000 cubic feet of gas through a tester in a sand at 1425-1430 feet. Casing has been set and preparations are being made to drill in. The well showed gas, oil and salt water in a sand at 1297 to 1301 feet, which is about the level of the regular producing formation. The well is located on Block 7, Share 5, Fansler partition of the Comitas Grant.

Second Saxet Field Well Successfully Completed

San Antonio, Texas.—Completion of the second oil producer in the Saxet field and a $75,000 cash deal for producing properties in that area were features of Nueces County activity during the past week.

Houston Oil Company's Hunter 1, Section 591, is flowing upward of 100 barrels of oil in a sand logged at 4066 to 4079 feet. It has 1450 pounds pressure on the tubing and 1700 pounds pressure on the casing. Field men are experimenting with chokes in an attempt to cut the gas pressure and to increase the flow of oil.

Houston Oil Company during the week purchased Bay Oil Company's leases, consisting of several hundred acres adjoining the Houston-Hunter tract on the south and west, for a consideration of $75,000 cash. Bay Oil Company retains a one-sixteenth overriding royalty. Its properties include the Lawrence property, which has one producing gas well at 1569 feet, which gauged 40,000,000 cubic feet of gas when brought in. The first well drilled on this property nearly one year ago blew out at this depth and cratered. The second well was successfully completed as a gasser.

The Moody-Seagraves-Morgan's Smith 1, three-fourths of a mile from the Dunn 6 discovery oil well in Saxet area, apparently has found a second deep pay stratum. After successfully killing the well at 4088 feet, where it made a large gasser, it has been drilled to 4256 feet, where it is showing considerable gas and some oil in sand and shale. Saxet Oil Company's Dunn 6 made a producer of about 200 barrels initial flow at 4290 to 4304 feet.

The Saxet Oil Company's State National Bank, also in the Saxet area, has been abandoned at 2465 feet. The well was drilled to 5515 feet, but failed to show anything interesting. It was then plugged back to the present depth to complete as a gasser. Casing was set at 2452 feet, but when it was swabbed in, it made salt water with a little gas.

New Location at Darst and Wildcat Test Hold Interest

San Antonio, Texas.—A new location in the Darst Creek proven area of Guadalupe County was announced last week by Humble Oil and Refining Company on its L. G. Denman lease. The well, No. 21-A, will be drilled immediately.

Magnolia Petroleum Company has two active operations in the field at this time, the Klein 6, which is waiting on cement at 2604 and Annie Knodle 5, which is drilling in the Del Rio at 2530.

An interesting wildcat in this area was announced during the week. It is Luling Oil and Gas Company's Nixon 1, about one mile east of Magnolia Petroleum Company's Nixon well, which was drilled to the Edwards and tested sulphur water about a year ago. The well is several miles east of the Darst Creek field and on a probable parallel fault. Operators are "playing" this well for being on another complete structure, as were the Luling-Bruner field combination. The exact location is 2200 feet from the south line and 3300 feet from the west line of the 908-acre tract.

White Point Field Well Put Back on Production

San Antonio, Texas.—Saxet Oil Company put its Rachel 17 in the White Point field, San Patrico County, across Nueces Bay from Corpus Christi, back on production last week. According to latest word from the field, it is making around 40 barrels daily.

The well originally came in at total depth of 4902 feet for 85 to 100 barrels of oil daily, but declined to 40 barrels after being worked on. It was then deepened to approximately 6000 feet with no additional production being obtained.

The well has been plugged back to a total depth of 4903 feet and 22 feet of screen set in the hole. It is now making about 40 barrels of oil and 20,000,000 cubic feet of gas.

It is believed that the well is located too near the top of the gas structure to make a good oil producer and other tests likely will be drilled immediately in the surrounding area.

Test for Oil in Mt. Lucas Gas Field to Be Abandoned

San Antonio, Texas.—Houston Oil Company's Ross Boothe 1-A, 3600 feet northeast of the Mt. Lucas gas field in Live Oak County, likely will be abandoned after failing to make a commercial oil producer in a sand at 5270-77 feet. Orders are said to have been given for pulling of tubing in the well preparatory to closing it down.

This well has been most interesting since it was spudded, due to the fact that it was drilled to further test a showing encountered at 5252-57 feet in the same company's Boothe 1, which tested 300 feet of 50 gravity oil in 12 minutes on a drill stem test. The sand in this well was identified as the same as in the Pettus field. An unfortunate mechanical difficulty made the completion of Boothe 1 impossible.

Houston Oil Company's other deep test, Cartwright 22, 500 feet due east of the Mt. Lucas field, is resuming drilling at 6023 feet after changing drill stem. The stem was stuck in the hole several days. The same company's Brown Land and Cattle Company 3, is drilling at 2765 feet and the No. 4 well on the same fee is drilling at 650 feet after setting 576 feet of 13⅜-inch casing.

The only other well that is reported active in Live Oak County at this time is Jacobs, Buzzini and Pickett et al's Kay 1, five miles east of George West, which is coring below 2800 feet.

Duval County Wildcat Completed as Gas Well

San Antonio, Texas.—Magnolia Petroleum Company's Wilson 1, Survey 136, Duval County, offset to Frasher and Schoolfield et al's semi-wildcat oil producer in Section 135, was completed as a gasser with an initial flow of 25,000,000 cubic feet January 13. The well has 625 pounds rock pressure.

The new producer has a sand at 2244 to 2250 feet with casing set at 2244 feet. The producer of Frasher and Schoolfield et al recently was completed for 1000 barrels of 22.2 gravity pipe line oil on a five-eighths-inch choke on two-inch tubing at 2303 to 2308 feet. These two wells are located about 1½ miles southwest of the Schoolfield-O'Byrne pool.

Frasher and Schoolfield are preparing to spud in their Bishop Duval Land Company 2, which is located 330 feet from the north and west lines of the south one-half of Section 135.

Vacuum Oil Company's Duval County Ranch Company 1-A, Section 280, nine miles northwest of the Schoolfield-O'Byrne pool in northwestern Duval County, is reported to be drilling at 3072 feet. It is being watched carefully.

Buchanan et al bandoned their Welder-Wood 1, eight miles northeast of the Schoolfield-O'Byrne pool in Survey 215, after testing fresh water and a little oil at 1529-1531 feet.

Louisiana--Arkansas Field Notes

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Complete Second Trinity Zone Gas Well at Rodessa

Shreveport.—Rodessa, North Louisiana's deepest commercial gas field, added its second Trinity zone gas producer during the past week when United Production Corporation's French 1, SW NW Section 34-23-16, Caddo Parish, was siphoned in from 15 feet of broken lime and sand at 5522 feet making 20,000,000 cubic feet of dry gas with a rock pressure for 1½ hours of 2350 pounds. The well had shown oil traces while washing was going on.

This new gasser, the second for the field, which is northwest Caddo Parish, is 1800 feet east of the first gas well completed last summer by R. W. Norton of Shreveport as a 12,000,000 foot well at total depth of 5506 feet, North Louisiana's deepest commercial well. Surface elevation of the two tests is the same, 230 feet. The new well had previously been carried in the name of a United subsidiary, Texas-Louisiana Pipe Line Company. Another test by the same company, Wall 1, Section 23-33-16, was drilling plug late last week, seven-inch casing having been set at 5160 feet.

United Production Corporation took a block of approximately 5000 acres in this area from Norton last summer and the two present tests are the first drilled by the new owners. The gas will be run as soon as a gas line is built, right-o-way for the project already having been secured and surveyed, to the United Production Corporation's gasoline absorption plant at Pine Island. The gasoline content runs approximately 2000 gallons per 1,000,000 cubic feet of gas.

S. P. Borden and associates last week abandoned a wildcat in Bienville Parish, a deep test for this territory, as a salt water hole at total depth of 4875 feet in a sand under a lime formation. This test was Thomas 1, NW NW Section 27-16-9w. Seven-inch casing had been set at 4033 feet.

Prairie Oil & Gas Company's 5000-foot wildcat in northeast Claiborne Parish, F. B. Shackelford 1, SE NE Section 30-23-5w, elevation 226 feet, late last week was drilling a gumbo, shale and lime formation at 4890 feet, after a drill stem test of 30 feet of broken sand 4668-98 feet was missed for lack of a seat. In the same parish Louisiana Oil Refining Corporation's Langston 10, Section 19-21-7w, was drilling hard sand and rock at 2821 feet.

Zwolle Leads Louisiana in Number of New Locations

Shreveport.—Zwolle, for more than a year the most active oil field of North Louisiana, failed to record a new producer during the week ending January 17, but continued to lead other districts in new locations with five of the week's seven tests being started in that district. Four of the five locations are for offsets to new producers in the south and southeast extensions of the east field.

There are at present less than 20 drilling operations under way in the Zwolle field and its adjacent territory, although it still leads activity in North Louisiana. This total does not include rigs up and derricks.

Magnolia Petroleum Company's Lucius 1, Section 2-3n-12w, in south Sabine Parish, late last week cored a sandy shale at 2148 feet. This well is a rank wildcat. A. H. Tarver is making a somewhat deep test of Baker 1, NW NE Section 36-8-12, which topped the Zwolle marl at 2209 feet, topped the Zwolle chalk at 2224 feet, and the Blossom at 3040 feet. Late last week this test was drilling at 4000 feet.

Standard Oil Company's Hoell 1, SW SW Section 32-14-13, a north edge well in the Holly district of De Soto Parish, was abandoned late last week as a dry hole at 2933 feet. However, the same company has rig up for Farmer A-5, SE SW of the same section. The week's other North Louisiana location is United Production Corporation's Treat 1, NW NE Section 14-17-12, Bossier Parish, Wistar gas district.

Louisiana Gas & Fuel Company drilling Tensas Delta B-2, SW NE Section 23-7-4e, La Salle Parish, tested salt water at 2641 feet and is arranging to deepen.

Drilling Activity at Low Ebb in Arkansas Fields

Shreveport. — Drilling activity continued at a low ebb in Arkansas during the week ending January 17, no new locations being made, new activity consisting of four workovers for the Smackover field in Ouachita and Union Counties announced by J. E. Crosbie, Incorporated. Three of the workovers, all on the Sewell lease, are for Section 33-15-15, of Ouachita County, and the fourth is for Flenniken 7, Section 9-16-15, Union County. During the week this company perforated casing to bring in a test on the Sewell lease as a 150,000 foot gasser.

S. C. Jeffus, Trustee, who completed a shallow hole at 330 feet in Underwood 1, Section 4-20-8e, Clay County, as a small gasser during the last week abandoned Underwood 2, NW SE Section 4-20-8e, 58 feet north of the first hole, as a dry failure at 237 feet, at which depth six-inch casing had been set. The area is rank wildcat.

Late last week E. C. Brewer, Trustee, was drilling gummy shale at 1831 feet in Hillman 1, SE NE Section 20-10-13, Dallas County. Arkansas-Louisiana Pipe Line Company cemented eight-inch casing with bradenhead at 2875 feet and is drilling at 2892 feet in hard lime in Hudson 1, SE NE Section 14-10-24, Johnson County gas field. The same company's McFadden & Brooks 2, NE NW Section 15-9-21, a wildcat in Pope County, encountered a water sand at 3435 feet.

Sunby and associates late last week were coring at 3234 feet after testing dry through drill stem from 3210-17 feet and coring a sand from 3221-24 feet in Perdue 2, NW NW section 33-16-14, east of the Cailon field of Union County. Marine Oil Company's W. B. Thompson B-3, SE NE Section 10-18-13, Urbana district, Union County, is nearing the pay horizon in that field late last week, being down to 3360 feet.

Lease Trading and Sales Are Active in Mississippi

Jackson, Mississippi.—J. P. Evans of Shreveport has transferred to Arkansas-Louisiana Pipe Line Company a total of 3636 acres of land in Townships 6 and 7, Ranges 1, 2 and 3 west, all in Hinds County. The consideration was nominal, being but $1. The same company has also taken for a similar consideration a total of 220 acres from C. R. Hoffer of El Dorado, Arkansas, the latter tracts being located in Section 9-6-1e, Section 18-6-1e, and in Sections 15, and 22-5-1e.

Humble Oil & Refining Company is blocking 77,000 acres in Franklin County, south central Mississippi, including 52,000 acres from the Homochitto Lumber Company. This block is in Townships 5 and 6 north, and Ranges 2, 3 and 4 east. Humble Oil & Refining Company is said to be adding 6000 acres to its 80,000-acre block in Wilkinson County, southwest Mississippi. Consideration for the Franklin County tracts is starting of geophysical and geological work on the block within the next year. Already in Franklin and Jefferson Counties Sun Oil Company and Carter Oil Company each has a magnetometer man at work.

In Jefferson and Adams Counties, southwest Mississippi, Arkansas-Louisiana Pipe Line Company has acquired 100,000 acres from Britton and Koontz, bankers at Natchez, for a reported consideration of $15,000, and the starting of a well by next July 1. The tracts are located in Townships 8, 9 and 10 north, and Ranges 1 east and 1 and 2 west. Two tests were drilled in this general area last summer by A. C. Glassell of Shreveport.

Two Wildcat Tests Hold Interest in Mississippi

Jackson, Mississippi.—Two wildcats in widely separated parts of Mississippi, created considerable interest during the week. Mississippi Gulf Oil & Gas Company, drilling Pipe 1, NW NE Section 35-8n-16w, Covington County, 70 miles south of Jackson, tested dry in a drill stem test in a limey green sand, possibly Sparta, from 1740 to 1777 feet. Neither water, gas or oil appeared. The well will be drilled deeper. Its elevation is 352 feet and the Vicksburg formation was topped at 996 feet. In Section 5-8n-16w of the same county, United Production Corporation, has taken over from S. P. Borden and associates, their McIntosh 1, which late last week was drilling rock at 1610 feet. Twelve and a half inch surface casing was set in marl in the latter test at 805 feet. Its elevation is 332 feet. Both wells are on the same general magnetic high with a 200 gamma relief.

The other wildcat that aroused interest was Central Oil & Gas Company's Cameron 1, SE SE Section 11-9n-1e, Madison County, north of the Jackson gas field. This test, planned as a 4000-foot hole, according to reliable sources, encountered a gas show at around 1530 feet, and 6⅝-inch casing is being set at 1532 feet. Glauconitic shale was topped at 1305 feet with a chalk formation from 1518 to 1524 feet, followed by a glauconitic sand to bottom of the hole. This may be near the base of the Talahatta formation.

Pearl River Oil & Gas Company's Pate 3, SE SW Section 12-5-1e. Rankin County, in the southeast part of Jackson field, is making an estimated gas yield of 45,000,000 cubic feet of gas daily. It is said to have gauged 63,798,340 feet in 20 minutes and then was shut in. Total depth is 2376 feet with five feet in Midway chalk. Midway shale was topped at 2335 feet, surface elevation being 269.5 feet.

Millstein Oil & Gas Company, after bailing considerable heavy oil of about 13.2 gravity and considerable salt water from Gammill-Hartfield 1, SW SE Section 6-5-2e, Rankin County, a half mile northeast of gas production, late last week were arranging to swab at total depth of 2500 feet. Midway chalk was reported topped at 2496 feet.

Amory's third commercial gasser was completed during the past week when Amory Petroleum Corporation's Carter 3, SE SE Section 7-13s-17w, Monroe County, northeast Mississippi, was completed gauging 484,000 cubic feet of gas with 380 pounds rock pressure; total depth is 2400 feet, the last four feet being shale under 14 feet of gas sand. Elevation is 487 feet. Ten-inch casing was set at 564 feet, possibly top of the Paleozoic, and 6⅝-inch casing was cemented at 2382 feet. The well was shot recently to increase its gas yield. Rig has been moved to the same company's Harris 1, NW NW Section 18-13s-17w, in the same county.

Alcorn Petroleum Corporation which has had a long fishing job in Matthews 1, SE SE Section 14-2s-7e, Alcorn County, northeast Mississippi, has finally junked and abandoned hole at 2735 feet. This was one of the oldest tests in the state, antedating the Jackson gas field by many months.

Drumright Chapter Meets January 20

Drumright, Oklahoma.—The Drumright chapter, American Petroleum Institute, division of production, will start the year 1931 with a big program at its regular meeting, Tuesday evening, January 20, at 7:30, at the Community Hall in Drumright. J. I. Crockett, Jones-Laughlin Company will give an illustrated talk on the pipe industry and W. H. McPheeters will present the "Right and Wrong Methods of Making Concrete."

The chapter held its last meeting on December 16, 1930, at which time the following officers were selected to serve during 1931:

E. R. Pitcher, The Texas Company, chairman; R. C. Woodruff, Mul-Berry Oil Company, vice-chairman; E. L. Bell, Deep Rock Oil Corporation, secretary; E. F. Hicock, The Texas Company, assistant-secretary; and D. L. Trax, Gypsy Oil Company, advisor.

The chapter committee will be composed of the following men:

W. H. Bettis, Gypsy Oil Company; T. A. Newton, Twin State Oil Company; L. A. Cook, Shell Petroleum Corporation; H. J. Wirz, The Texas Company; Charles Shuman, Sinclair Oil & Gas Company; Clyde Vinton, Pure Oil Company; W. P. Banner, Carter Oil Company; W. H. Danforth, Deep Rock Oil Corporation; J. A. Alspach, Prairie Oil & Gas Company; E. D. Smith, Magnolia Petroleum Company; W. B. Alleman, Tidal Oil Company; Sidney Miley, Skelly Oil Company; C. C. Crockett, Mid-Continent Petroleum Corporation, and W. H. Winesburg, Barnsdall Oil Corporation.

Tulsa.—Brown and Gouin's Grogan 1, SW NW NE Section 35-7s-6w, Jefferson County wildcat southwest of production in the Oscar pool, has been abandoned at 2528 feet. This test was drilled on a pronounced structural nose on the Nocona uplift. The nose is open to the southeast but has definite dips on the northeast, northwest, and southwest. The Grogan well was located on the southeastern part of the structure which strikes through Sections 26, 27, 34, and 35-7s-6w.

Completions for Past Week in U. S. Fields

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CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ELWOOD—		
Barnsdall Oil Co.,-Rio Grande Oil Co., State 88-6	1200	3600
LONG BEACH—		
Hancock Oil Co., Signal 4	800	7610
Shell Oil Co., Jones 12	100	6900
Patton-Wilson 12	150	6310
PLAYA DEL REY—		
Barnsdall Oil Co., Burks 2	350	4440
Dana Pet. Co., Simmons 1	200	4095
Ohio Oil Co., Gun Club 8	600	4345
Wood Pet. Co., Wilson 1	300	5910
VENTURA AVENUE—		
Shell Oil Co., Taylor 64	550	4570

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Blaksley and Wentz, Holliday 1, sw c ne 24-27-4e	100	2011
McPHERSON COUNTY—		
Otstot et al, Munn 1, nw sw sw 6-20-1w	1000	2930
Lario O&G and Shell Pet., Ritz 1, ne c sw 1-20-2w	4375	2962
McPherson O&G Develop. Co. and Shell, Griffin 1, "B", c sw ne 14-19-2w	¶25	2880
Shell Pet. Corp., Anderson 1, se c nw 30-19-1w	480	3410
W. C. McBride, Inc., Griffin 1, c ne sw 14-19-2w	¶28	2892
RICE COUNTY—		
Vickers Pet. Co., Binger 3, nw ne se 21-20-10w	20	3358
Vickers Pet. Co., Binger 2, ne nw se 21-20-10w	720	3340
SEDGWICK COUNTY—		
Magnolia Pet. Co., Vickers 1, sw c 17-27-2e	135	2932
National Refining Co., Gselle 1, se sw se 1-27-1e	*	3412
Tavender Oil Co., McLean 1, se sw se 23-26-1w	*	975
WOODSON COUNTY—		
Empire O&R et al, Berry 2, sw c 26-23-13e	*	1882

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
CADDO COUNTY—		
Mid-Kansas O&G and Ramsey Pet. Rowe 1, sw c nw ne 36-6-10w	1195	3312
CARTER COUNTY—		
The Texas Co., Eaves 5, se c sw 24-1s-3w	110	2380
J. E. McCarthy, Noble 1, nw se sw 14-2s-2w	*	503
CLEVELAND COUNTY—		
Harris & McNeal, Corbett 1, c sw ne 20-6-1e	*	6760
CREEK COUNTY—		
C. G. Tibbens O&G, Harry 3, nw c ne nw 9-14-10e	5	3157
R. E. Freeman et al, Harris 1, ne c sw nw 15-19-7e	20	2687
Wilson Pet. Co., Cat 1, se c sw 31-16-9e	*	3090
American Oil Co., Tiger 1, se c ne 26-17-10e	*	2630
GRADY COUNTY—		
Badgett and Cooper, Miller 2 nw c sw 25-4n-8w	¶14	1853
HASKELL COUNTY—		
Mid-Western O&G, Pelster 1, c ne se 33-10-22e	*	4297
LATIMER COUNTY—		
Choctaw Gas Co., Paunocci 1, c se ne 3-6-22e	¶3	1610
LINCOLN COUNTY—		
Blackwell O&G, Marchant 1, se nw se 28-17-4e	¶1	4394
MARSHALL COUNTY—		
Mutual O&G, Sharp 1, nw c se se nw 3-5s-6e	*	805
A. A. Akers, Spicer 1, sw c se sw 33-5s-7e	*	465

For Tabulation and Comparsion See Market Section

Company, Well and Location	Initial Production Bbls.	Depth
MUSKOGEE COUNTY—		
A. T. Krebs et al, Jackson 1, c se se 19-15-17e	*	1750
OKLAHOMA COUNTY—		
Slick Estate, Wespaco 1, ne c se sw se 34-12-3w	16,830	6510
I. T. I. O., Lawrence Place 2, csl sw nw ne 15-11-3w	18,650	6360
Trosper 6, se sw ne 14-11-3w	645	6235
Phillips Pet. Co., Clayton 1, ne c sw 10-11-3w	5870	6275
Slick Estate, Campbell 3, se ne ne 3-11-3w	11,300	6285
Classen 3, sw c ne nw nw 2-11-3w	17,305	6248
Phillips Pet., Day 1, cwl ne sw nw 2-11-3w	12,200	6232
Carey 1, csl n½ ne nw, 2-11-3w	4866	6285
Don Leon Oil Co., Hunsicker 1, sw c nw nw 2-11-3w	16,295	6258
Anderson-Prichard Oil, Gibbons 1, se c ne 2-11-3w	2590	6115
Empire O&R, Gustine 2, sw nw ne 1-11-3w	2065	6472
Wirt Franklin Pet. Corp., Theimer 5, sw se se 2-11-3w	950	6454
OKMULGEE COUNTY—		
J. E. Wallace, Rentie 1a, c nw sw 11-14-14e	*	2474
F. Hyer, Barnett 7, (owdd) se c ne nw 2-15-14e	*	1912
Jenkins et al, Cousino 1, ne c sw 2-15-12e	*	2547
OSAGE COUNTY—		
John W. Fitzgerald, 1, nw c sw 26-27-11e	8	1021
PAWNEE COUNTY—		
Peter Adamson, Jr., Moore 1a, c east ½ se sw 24-21-7e	*	2807
Dewey Neal et al, Diem 2, sw ne nw 18-21-8e	*	2762
PITTSBURG COUNTY—		
Cities Service Co., Hughes 1, c nw nw 16-6-17e	*	2285
POTTAWATOMIE COUNTY—		
Continental Oil, Walgreen 1, se c sw 4-7-4e	195	3765
Deep Rock Oil Corp., Gibson 5, ne sw ne 23-6-3e	1010	3390
Magnolia Pet. Co., Alexander 1, ne c 27-6-3e	*	4505
SEMINOLE COUNTY—		
Deep Rock Oil Corp., Douglas 2, sw c ne 30-8-8e	2100	4023
Amerada Pet. Corp., Tiger 3, ne nw sw 3-8-5e	540	4030
Magnolia Pet. Co., Ground 5, ne se nw 23-9-5e	205	4315
O. H. Parkening, Wilson 1, se c nw 27-7-5e	*	4529
STEPHENS COUNTY—		
Ven Mex Pet. Co. and Mid-Continent Oil Co., Nigh 4, ne c nw 34-1s-8w	5	1966
Sykes et al, Kirk 1, nw c ne 16-1s-8w	*	3356
Empire Gas & Fuel Co., Miller 2, cel ne ne 5-2s-8w	*	2250
TULSA COUNTY—		
Ohio Oil Co., Haikey 2, cel sw sw 33-18-14e	20	1502
McCune et al, Jefferson 1a, cnl ne se 23-19-11e	25	2221
WAGONER COUNTY—		
Ash Bros., Childers 2, sw c nw se 15-18-17e	15	832
Bailey et al, Replogle 5, cwl nw ne 31-19-16e	15	650
A. W. Swift et al, Chockley 1, se c sw 27-17-16e	*	1600
J. H. Striker, Prince 4, ne c sw 29-18-16e	*	850

EASTERN STATES

Company, Well and Location	Initial Production Bbls.	Depth
SOUTHEASTERN OHIO		
WASHINGTON COUNTY—		
Turney & Co., Hale 4	3	472
McTaggert & Co., Fisher 1	*	1720
MORGAN COUNTY—		
Ohio Fuel Gas Co., Miller 2	¶¼	1650
CENTRAL OHIO		
MEDINA COUNTY—		
Barnhart & Co., Stone 1	*	....
Oko Oil & Gas Co., Essig 16	*	....
Edson & Co., Shaw 22	8	336
Frank 10	*	448
MUSKINGUM COUNTY—		
S. S. Hulse & Co., Mohler 1	*	4274
Atha Co., Arnold 1	*	4200
Heinle 1	*	3937
ASHLAND COUNTY—		
Farmer & Co., Stewart 2	¶¼	1 725
D'Lano & Co., Jacobs 3	5	....
LICKING COUNTY—		
Wehrle Gas Co., Flory 1	¶¼	2385
HOCKING COUNTY—		
Kachelmacher Estate, Karschner 3	*	2756
WAYNE COUNTY—		
Faulkner & Co., Roman 1	*	523
SUMMITT COUNTY—		
East Ohio Gas Co., Stark 1	*	4004
TUSCARAWAS COUNTY—		
John Glass, Coventry 1	¶¼	4002
BELMONT COUNTY—		
A. C. Peters & Co., Lyne 3	¶½	1820
STARK COUNTY—		
East Ohio Gas Co., Harris 1	*	4212
NORTHWESTERN OHIO		
HARDIN COUNTY—		
Penn Oil & Gas Co., Oats 2	¶½	....
AUGLAIZE COUNTY—		
Harry Manion & Co., Rable 1	2	....
MERCER COUNTY—		
A. A. Lauber, Young 1	1	....
INDIANA		
VANDEBURG COUNTY—		
Vandeburg Oil Co., Sec. 22, Center Twp. 1	7	920
KENTUCKY		
HOPKINS COUNTY—		
Missouri-Kansas Pipe Line Co., Richards Hrs. 1	¶2	....
CLAY COUNTY—		
Petroleum Exploration Co., Craft 1	¶½	....
Spurlock 1	¶½	....
LESLIE COUNTY—		
Petroleum Exploration Co., Bagley Coal Co. 1	*	....
Nield 1	*	....
McLEAN COUNTY—		
M. Root & Co., Hicks 1	*	....
HENDERSON COUNTY—		
Niagara Drilling Co., Cooper 4	5	....

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
OUACHITA COUNTY (Smackover)—		
J. E. Crosbie, Inc., Sewell 10, 33-15-15 (sec. comp.)	¶¼	2252

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH (Elm Grove)—		
Palmer Corp., Schmidt 1, 14-17-12	¶5¼	1965
OUACHITA PARISH (Monroe)—		
Bahan & Bahan, Zabolia 1, 35-19-3e	¶2	2192

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BAYOU BLUE—		
Standard Oil Co., Schwing 5	280	2303
BAYOU CHOCTAU—		
Texas Gulf Sulphur Co., Wilbert 7	*	667
BLACK BAYOU—		
Freeport Sulphur Co., Yount-Lee 6	*	1217
NAPOLEONVILLE—		
Texas Gulf Sulphur Co., Dugas & Le Blanc 5	*	715
Dugas & Le Blanc 4	*	655

(Continued on page 82)

Permits Granted for New Wells

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ARKANSAS

MILLER COUNTY—Gusher Bend Oil Co., Caesar Adams 1, 120 ft s and 800 ft w ne cor nw¼, 26-14-26.

UNION COUNTY—The Ohio Oil Co., Richard Pumphrey 5, 660 ft s and 660 ft w ne cor nw¼, 12-17-14. Wilson & Chapman, Hadley 1, 330 ft n and 33- ft e sw cor ne¼ sw¼, 3-18-13.

CALIFORNIA

KERN COUNTY—Union Oil Co., Bacon 1, 21-28-20. Shell Oil Co., Morris 1, 32-30-29.

LONG BEACH—Columbia Oil Co. No. 1, 13-4-13. F. H. Lathrap No. 2, 29-4-12. Moffatt & Campbell Pet. Co. No. 1, 19-4-12.

PLAYA DEL REY—Lubrite Oil Co. No. 2, 28-2-15. Senator Oil Co. No. 2, 28-2-15. Mack Oil Co. No. 1, 28-2-15. Meier Oil Co. No. 1, 28-2-15.

SANTA BARBARA COUNTY—Irvine Oil Co. No. 1, 27-4-27.

TULARE COUNTY—Grand View Oil Co. No. 1, 8-23-28.

VENTURA—Shell Oil Co., Taylor 68, 21-3-23.

TORRANCE—Westwood Oil Producers Co. No. 1, 6-4-14.

KANSAS

BUTLER COUNTY — Mohawk Oil Co., Rutherford 1, ne nw se 3-27-5e.

MARION COUNTY — Harwood Oil Co., Mott 1, sw se nw 11-17-4e.

McPHERSON COUNTY — Stearns, Streeter and Shell Pet., Chinbery 1, c ne nw 15-19-2w. McPherson O&G Development Co., Salthouse 1, c se 15-19-2w. McPherson O&G Development Co., Myers 1, "B," c se 14-19-2w. W. C. McBride, Inc., Griffin 2, c se sw 14-19-2w. Broswood Oil Co., Griffin 2, c sw sw 14-19-2w. Joe Rush et al, Johnson 1, c se nw 10-19-2w. McPherson O&G Development Co., Finkle 1, c ne nw 23-19-2w.

RENO COUNTY—McPherson O&G Development and Shell Pet., Goering 1, sw c ne 1-23-4w. Tom Palmer and Phillips Pet. Co., Goering 1, nw c se 1-23-4w.

RICE COUNTY—L. E. Cress et al, Sharpe 1, se c ne 13-20-10w.

LOUISIANA

ASCENSION PARISH—Gulf Refg. Co., Houston, United Ld. Co. Inc. 19, 15-10s-4e, 3750 ft n and 1360 ft w of se cor of section.

CAMERON PARISH — Magnolia Pet. Co., Dallas, Sweet Lake Land & Oil Co. 3, 5-13s-7w, 2243 ft s and 1784 ft w of ne cor of section.

DESOTO PARISH—Dupree Fountain Mansfield, La., J. M. Nabors 1, 5-13n-11w, 250 ft s and 250 ft w of n¼ cor of section. Standard Oil Co. of La., Shreveport, La., W. H. Farmer et al, A-5, 32-14n-13w, 300 ft n and 300 ft e of sw cor se¼ of sw¼.

RED RIVER PARISH—La. Oil & Dev. Co., Houston, La. Delta Pecan Orchard 2, 27-13n-11w, 2950 ft s and 300 ft e of nw cor of section.

SABINE PARISH—O. A. Gautier & Asso., Zwolle, La., Meshell 1, 30-8n-12w, 330 ft e and 150 ft n of sw cor se¼ of nw¼. Ohio Oil Co., Shreveport, La., Bowman Hicks 6, 2-7n-12w, 300 ft n and 265 ft w center of section. Pelican Nat. Gas Co., Shreveport, La., La. Long Leaf Lbr. Co. 8, 4-7n-11w, 384 ft n and 330 ft e sw cor nw¼ of sw¼. Pugh Hickman Drlg. Co., Shreveport, La., Sabine Lbr. Co. 2, 34-8n-12w, 150 ft e of sw cor nw¼ of ne¼.

OKLAHOMA

CARTER COUNTY — Trevelyn Oil Co., Mitchell 4, sw c se 24-1s-3w.

COMANCHE COUNTY—Max Pray Oil Co., Cline 1a, ne c 8-3n-10w. Voe Wright and Roy Carter, Bowen 1, sw c se 29-2n-9w.

COTTON COUNTY—Shasta Oil Co., Tilley 1, c nl ne ne 23-1s-10w.

CREEK COUNTY — Burton and Holmes, Snakeye 1, se c sw sw 5-18-10e.

KAY COUNTY—Pine et al, Ogg 2, nw c ne sw se 35-25-1w.

For Tabulation and Comparsion See Market Section

LATIMER COUNTY — Howard et al, Holmes 1, se sw nw 16-3n-21e.

LINCOLN COUNTY—H. D. Truek et al, Wolf 1, 2000 ft from west line and 330 ft from north line 12-15-6e.

MARSHALL COUNTY—Mutual O&G Co., Commerce Trust Co. 1, cwl ne ne se 36-5s-5e.

McINTOSH COUNTY—I.T.I.O., Mulkey 1, c ne ne 36-12-18e.

MUSKOGEE COUNTY — P. Boyle et al, Ware 3, se c ne sw ne 14-15-15e. Francis Corp., Lewis 1, nw c ne se 14-15-15e. C. W. Brown, Young 1a, se c ne 15-15-15e.

NOBLE COUNTY—Magnolia Pet. Co., and Bu-Vi-Bar Oil Corp., Young 2, nw sw nw 22-21-2w.

OKLAHOMA COUNTY — I.T.I.O., Terrace Lawn 2, nw c ne nw ne 10-11-3w. Hall O&G and Westgate Oil Co., Wilson 1, nw c ne sw nw 10-11-3w. Franco-Dominion, Ltd., Eckroat 1, sw c nw se nw 10-11.3w. Anderson-Prichard and Phillips Pet., Wilhoit 1, c nl se nw ne 10-11-3w. Morgan Royalty Co., Bisbee 1, nw se nw 3-11-3w. Phillips Pet. Co., Hare 1, se c ne sw se 34-12-3w.

OKMULGEE COUNTY—English et al, Harris 3, cnl se se 1-14-14e. Whitcomb et al, Harris 4, csl ne ne 1-14-14e.

OSAGE COUNTY—L. G. Stanley et al, 4, sw nw ne 14-21-8e.

PAWNEE COUNTY — Peter Adamson, Jr., Moore 2, cel se sw 24-21-7e.

PITTSBURG COUNTY—Midwestern O&G, White 1, se ne se 8-7-18e.

PONTOTOC COUNTY—G. J. Lynch et al, Newby 1, ne c se ne ne 24-5n-4e.

SEMINOLE COUNTY — Deep Rock Oil Corp,. Douglas 5, nw c se 30-8-8e.

STEPHENS COUNTY — Junior Oil Co., Thompson 1, ne c sw se, 1-1n-7w. Hawkes and Carter, Duncan 1, ne c sw ne 28-2s-7w. A. L. Andres, Patrick 1, c s2 se 3.3s-8w.

TULSA COUNTY—Coffee et al, Evans 4, sw c ne 3-16-12e. L. L. Boyd, Costello 1, se c sw ne 2-18-14e.

WAGONER COUNTY—W. R. Bowman et al, Allen 3, nw c ne se 15-17-16e.

TEXAS

ARCHER COUNTY—Deep Oil Dev. Co., Wichita Falls, L. W. McCrory, 555, 1A, S 120, Amer. Trib. sur, 2200 ft from s and 3500 ft from e line sec. N. D. Goldsmith, Olney, I. T. Richardson, 40, 1, S 11, BBB&C sur, 150 ft from s and w lines. Krahenbuhl, Hutcheson & Bruner, Archer City. E. E. Hildebrand, 18, 1, R. Story sur, 1750 ft from w and 450 ft from n line blk 145. Wheeler, Brashear et al, Wichita Falls, S. M. J. Benson, 40, 1, 1808, TE&L sur, 450 ft from n and 150 ft from e line. T. F. Hunter, Wichita Falls, W. Duckworth, 130, 1, J. W. Harris sur, 2564 ft from n and 1250 ft from w line blk 7. R. R. Flake et al, Wichita Falls, J. B. Frerich, 80, 1, blk 3, C&P sur, 150 ft from s and e lines of lot 71. Moran, Heydrick & Fischer, Wichita Falls, J. W. Hasson, 117, 1, I&GN sur, ne corner.

AUSTIN COUNTY—Humble O. & R. Co., Houston, A. Diemar, 4, W. C. White sur, 500 ft se of No. 2; L. R. Sherrod, 4, same sur, 2235 ft from nw and 1034 ft from sw line.

BEXAR COUNTY—Eckert & Son, San Antonio, J. J. Brehm, 110, 6, No. 58 sur, 320 ft s of No. 5.

BROOKS COUNTY — Houston Oil Co., Houston, Wormser, 1275, 3, P. B. Pena sur, 200 ft from w and 1448 ft from s line.

CALDWELL COUNTY—L. H. Wentz, San Antonio, S. Mebane, 110, 2, F. Berry sur, 450 ft from e and 550 ft from s line.

CALLAHAN COUNTY—Star Drilling Co., Wichita Falls, E. L. Finley, 80, F1, S 77, Bayland Asy. sur, ne cor of e½ of se¼. Jno. Victor, Abilene, M. Alexander, 160, 1 S 12, E. T. Ry. sur, 300 ft from w and 187 ft from s line.

CLAY COUNTY—L. L. Bain, Iowa Park, Afer. Refg., 18, 1, blk. 59, McKenzie sur, 150 ft from s and w line.

COOKE COUNTY — Humble O&R Co.', Wichita Falls, C. G. Clayton, 136, 1, E. Reed, 1479 ft from n and 1005 ft from w line. Staniforth & Danciger O&R Co., Ft. Worth, C. Jacobs, 41, 1, J 7, Strickland sur, 450 ft from w and 150 ft from s line. T. B. Hoffer, Fort Worth, N. J. Yosten, 85, 1A, S 18, G. Ivey sur, 200 ft from s and 230 ft from w line.

CHAMBERS COUNTY—Humphreys Corp., Houston, J. F. Wilburn, 50, 2, H. Griffith sur, 50 ft from s and e lines. Yount-Lee Oil Co., Beaumont, Woodward, 10, Wm. Hodges sur, 862 ft from w and 1542 ft from n line of survey.

DUVAL COUNTY—Breeding, Frasher et al, San Antonio, Bishop, 160, 1, S 135, GB&NNG sur, 330 ft from n and w lines of s½.

FALLS COUNTY—A. T. Eddington, Port Arthur, R. Lewellyn, 150, 2, Geo. Allen sur, 150 ft s of center of n line.

FORT BEND COUNTY—Gulf Prod. Co., Houston, J. M. Moore, 28, J. Frazier sur, 4207 ft from n and 1804 ft from w line of sur.

GRAY COUNTY—Kewanee Oil & Gas Co., Tulsa, Morse E, 80, 1, S 15, B A9, H&GN sur, 330 ft from n and 250 ft from e line s½ se¼. Morse D, 80, 1, S 16, B A9, H&GN sur, 330 ft from n and 250 ft from w line s½ sw¼. Julius Livingston, Tulsa, Coombs, 160, 1, s 35, B 3, I&GN sur, 430 ft from w and 180 ft from s line. Cockrell-McIlroy Oil Co., Amarillo, Castleberry, 160, 9, S 126, B 3, I&GN sur, 990 ft from e and 330 ft from s line sec.

GOLIAD COUNTY — United Prod. Co., Houston, G. A. Ray, 1476, 28, W. A. Moore sur, 1300 ft from ne and 1000 ft from n line.

GUADALUPE COUNTY—Humble O. & R. Co., Houston, L. G. Denman, A, 300, 21, A. S. Emmett sur, 450 ft from ne and 3188 ft from se line.

HARRIS COUNTY—K. C. Baker, Houston, C. Ulrich, 75, 2, H. Nash sur, 370 ft from nw and 20 ft from sw line. Navarro Oil Co., Houston, H. M. Perry, 2, 2, No. 1028, BB&C sur, center of blk. 46.

HARDIN COUNTY—Rio Bravo Oil Co., Houston, Fee, 158, C108A, J. F. Cotton sur, 200 ft n of No. 94A.

HUTCHINSON COUNTY—Gibson Machine & Tool Co., Borger, H. E. Smith, 80, 1, S 8, B Y, M&C sur, sw cor of nw¼. Dixon Creek Oil Co., Amarillo, E. B. Johnson, F, 67, 1, S 15, B X03, H&OB sur, 330 ft from n and e lines. Texilvania Oil Corp., Amarillo, Harvey, 480, 1, S 14, B M21, T. C. Ry. sur, 330 ft from w and 990 ft from s line of nw¼.

JONES COUNTY—Trout & Bonds, Oklahoma City, M. J. Williams, 86, 1, S 12, B 19, T&P sur, 330 ft from n and w lines.

LEON COUNTY—Sun Oil Co., Dallas, M. E. Grayson, 229, 1, M. C. Marquez sur, 500 ft from n and 900 ft from w line.

LOVING COUNTY—California Co., Midland, J. G. Allen, 480, 2, S 90, B 1, W&NW sur, 330 ft from n and w lines of se¼. Folbre & Evans, Wickett, D. P. Dean, 80, 1, S 79, B 33, H&TC sur, 330 ft from ne and nw lines of sec.

MEDINA COUNTY—United North & South Dev. Co., San Antonio, J. J. Little, 191, 2, BS&F No. 1 sur, 1600 ft from n and 300 ft from w line.

MILAM COUNTY—R. H. Alexander, Fort Worth, W. R. Littleton, 66, 1, C. Chevallier sur, 150 ft from n and 225 ft from w line.

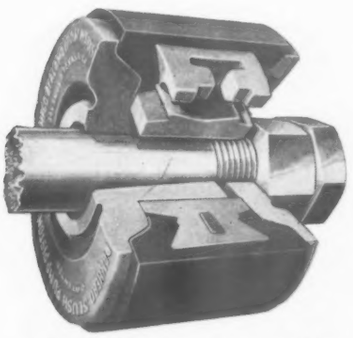
NUECES COUNTY—Houston Oil Co., Houston, O. Purl, 80, B1, B 7, R. Peters sur No. 2 sur, 330 ft from n and w lines.

PALO PINTO COUNTY—C. L. Peters, Strawn, W. L. Stephen, 1, 1, Strawn sur, 100 ft from n and 150 ft from e line.

PANOLA COUNTY—Texas Co., Shreveport, G. W. Brumble, 145, 6, E. Brackin sur, 600 ft n of No. 2.

PECOS COUNTY—L. B. Lancaster, Midland,

Ramhead
SLUSH PUMP PISTONS



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South Bend	Stuttgart, Ark.
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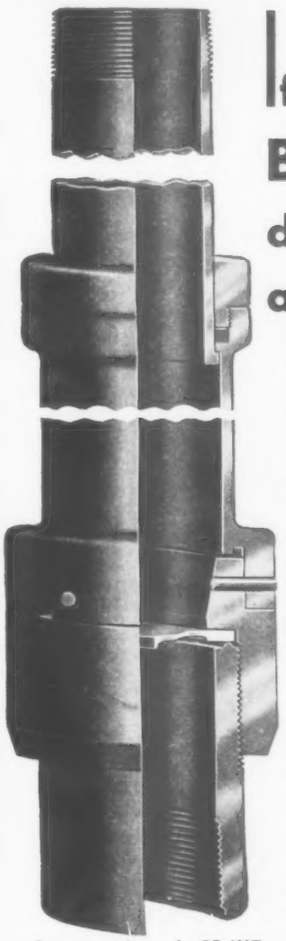

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H. J. Eaton, 80, 1, S 35, B 3, H&TC sur, 330 ft from se and sw lines. Stanolind O&G Co., McCamey, J. H. Tippett, 7, S 61, B 194, GC&SF sur, se corner.

REFUGIO COUNTY — Moody-Seagraves Corp., San Antonio, J. F. B. Heard, A, 50 2, Refugio sur, 150 ft from nw and ne lines. T. P. Morgan, San Antonio, E. St. John, 28, 1B, Refugio sur, 150 ft from n and e lines of blk. 14. Moody-Seagraves Prod. Co., San Antonio, T. J. Connor, 63, 7, Blk. 6, Refugio sur, 503 ft n of No. 1; 6, same sur, 340 ft w of No. 5. T. P. Shelly, 2, 1, Refugio sur, 180 ft from e and 180 ft from s line Blk. 4.

RUSK COUNTY—Rusco Oil Co., Henderson, D. Bradford, 32, 1, blk. 13. J. Ximinez sur, 150 ft from n and w lines. Federated Oil Co., Wichita Falls, Mayfield, 16, 1, J. Ximinez sur, 150 ft from s and w lines. H. L. Hunt, Henderson, C. Ashby, 114, 2, J. Ximinez sur, 165 ft from n and 425 ft from w line.

SHACKELFORD COUNTY — Lewis Prod. Co., Wichita Falls, T. A. Matthews, 210, 2, S 55, E. T. Ry. sur, 160 ft from e and 800 ft from s line. J. L. Douglas et al, Moran, E. Webb, 11, 3, S 1, Blind Asy. sur, 300 ft w of No. 2. H. & H. Drilling Co., Seminole, Okla., B. S. Walker, 60, 3, TE&L sur, center.

SCHLEICHER COUNTY—C. G. Cromwell, San Angelo, J. Tisdale, 640, 1, S 29, B M, GH&SA sur, center.

STEPHENS COUNTY—Arrowhead Oil Co., Dallas, J. F. Brown, 80, 1, S 31, B 6, T&P. W. F. Hunterman, Cisco, L. T. Wild, 40, 1, S 59, Bayland Asy. sur, 550 ft from s and 900 ft from e line.

THROCKMORTON COUNTY — W. W. Hudson, Dallas, Keeter, 90, 1, 2128, TE&L sur, 150 ft from s and e lines. Swain, Holcomb et al, Burkburnett, J. A. Matthews, 40, 1, 2222, TE&L sur, 150 ft from n and e lines.

TAYLOR COUNTY—Gibson, Adams, Hobbs & Ferguson, Abilene, J. L. Lowe, 105, 3, S 19, B 120, GCSL sur, 1432 ft from n and 160 ft from w line.

TRAVIS COUNTY—J. E. Waldron, Austin, T. Cook, 2500, 1, center.

UPTON COUNTY—Crosby Prod. & Royalty Co., Fort Worth, Sherk, 160, 1, S 15, B 3, MK&T sur, 328 ft from e and 468 ft from s line sw¼.

VAN ZANDT COUNTY—F. & M. Drilling Co., Houston, M. L. Gilbert, 5, 1, J. Walling sur, sw corner.

WICHITA COUNTY—A. T. Russell, Electra, Harrison, 45, 3, S 12, AB&M sur, 350 ft from n and 1190 ft from w line. J. H. Turner, 40, 1, S 15, TCSL sur, 150 ft from n and 450 ft from w line. C. R. Conyers, Electra, C. R. Brokaw, 10, 2, S 24, B 6, H&GN sur, 150 ft from n and 450 ft from e line. R. Clark, Wichita Falls, Saunders, 25, 4, Ward & Todd sur, 200 ft from e and 150 ft from s line Blk. 12.

WARD COUNTY—California Co., Midland, A. B. Gordon, 640, 1, S 6, B 34, H&TC sur, se cor of sec.

WASHINGTON COUNTY—Sun Oil Co., Beaumont, C. Eimann, 90, 3, H. Clay sur, 450 ft from nw and 150 ft from sw line.

WEBB COUNTY—O. W. Killam, Laredo, J. Cuellar, 877, 1, J. Cuellar No. 4 sur, 3120 ft from nw and 922 ft from sw line.

WILLIAMSON COUNTY—J. B. Whisenant, San Antonio, J. K. Lawrence, 170, 1, H. Owen sur, 1170 ft from w and 720 ft from s line.

YOUNG COUNTY—F H E & Kimbell & Anderson, Sherman, B. Finch, 40, C1, 39, TE&L sur, 450 ft from n and 150 ft from e line se¼. Putnam Oil Co., Cisco, B. H. Lawrence, 40, 1, 280, TE&L sur, 750 ft from w line sec. Williams & Sheldon et al, Wichita Falls, Belknap, 40, 4, 22, TE&L sur, 150 ft from n and w lines; 5, same sur, 300 ft s of No. 4. Young Bros. & Alexander & Terrell, Fort Worth, J. F. Larimore, 80, 4, 253, TE&L sur, 450 ft from n and 150 ft from e line. Seitz, Comegys & Seitz, Wichita Falls, W. T. Finch, 40, 1, 40, TE&L sur, 150 ft from n and w lines. Deep Oil Dev. Co., Wichita Falls, A. E. Logan, 80, 1, 9, TE&L sur, 150 ft from s and e lines of nw¼. E. R. Riggs, Graham, J. M. Kirkland, 35, 6, 2249, TE&L sur, 485 ft from n and 1340 ft from w line of sec. G. W. Cooper, Wichita Falls, N. Wilborn, 20, 1, 1854, TE&L sur, 150 ft from n and w lines. F H E Oil Co. & Kimbell & Anderson, Sherman, N. Finch, 40, C2, 39, TE&L sur, 300 ft s of No. 1. O. Brachter, Loving, Cullers, 40, 7, G. N. Stinnett sur, 750 ft from n and 450 ft from e line; 6, same sur, 450 ft from n and e lines. R. J. Watson, Newcastle, S. A. Morris, 40, 1, 254, TE&L sur, 450 ft from w and 1633 ft from s line sec. W. F. Hamilton, Wichita Falls, N. C. Finch, 40, 4, S 40, TE&L sur, 450 ft from n and 150 ft from w line n½ sw¼; 5, same sur, 150 ft from s and w lines.

ZAPATA COUNTY—O. W. Killam, Laredo, Fee, 640, 2, S 182, 1300 ft from sw and 2870 ft from se line; Slator, 886, 3, Borrego sur, sw cor of Blk. 78; E. Cuellar, 431, 38B, Sec. 277, 710 ft from sw and 550 ft from s line.

▼ COMPLETIONS ▼

(Continued from Page 79)

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
CARSON COUNTY—		
Cities Service Gas Co., S. B. Burnett 29	¶47	2235
Ryan Consolidated Pet. Corp., Jordan-Brown 1	¶50	2346
GRAY COUNTY—		
Empire Gas & Fuel Co., Robt. Sullivan 1	10	3598
Magnolia Pet. Co., W. B. Latham 2	¶1¼-85	3205
Phillips Pet. Co., Agnes Barrett 1	90	3405
Prairie O&G Co., A. Reynolds 1	¶18½	3407
Skelly Oil Co., H. Heitholt 1	¶30-7500	3001

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Gray & Johnson, Pruett-Webb 1	110	742
Madden & Hunt, Richardson 2	150	1181
COOKE COUNTY—		
Deep Rock Oil Co.-Faith Oil Corp., Holland 1	*	1692
Hoffer Oil Corp., Eberhardt 1	*	1719
JACK COUNTY—		
Magnolia Pet. Co., Kinder 1	*	5557
MONTAGUE COUNTY—		
R. I. Carter & Rycade Oil Corp., Cunningham 15	40	904
THROCKMORTON COUNTY—		
C. J. Kleiner et al, McWhorter 2	*	803
WICHITA COUNTY—		
T. F. Hunter et al, American Ref. Prop. fee 2	*	1277
Premier O&G Co., Penix 1	*	1750
WILBARGER COUNTY—		
A. E. Blair et al, Douglas 1	*	1165
NORTH YOUNG COUNTY—		
B. C. Banner et al, Routon 1	*	698
Beavers et al, Belknap 6	85	704
Frank E. Butler et al, Finch 5	50	663
F-H-E Oil Co., Finch 2-C	*	790
Finch 3-C	*	800
G. F. Howard et al, Mercier 1	*	1005
Jacobs O&G Co., Finch 2	*	738
Julian Oil Co. & Stripling, Larimore 11	210	704
King Roy. Co. & Bullington, Graham 11	300	716
Lindsey Drlg. Co., Husted 1	*	900
Putnam Oil Co., Larimore 1	*	681
E. R. Riggs et al, Kirkland 6	300	708
S. W. Stauffer et al, Wilson 1	*	1022

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Prairie O&G Co., Bessie Turner 1	*	1671
Stratton & Gully, Armstrong 1	*	1500
Vernon O&G Co. et al, Chastain 1	*	1583
CALLAHAN COUNTY—		
Production Pur. Co. & Humble O&R Co., Dyer 1	35	1041
COLEMAN COUNTY—		
Canyon O&G Co., Kellar 1	*	1635
Smith & Shaffer, Russell 4	¶1½	2323

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
FISHER COUNTY—		
Cranfill-Reynolds Co., Flannigan 2	*	3130
REAGAN COUNTY—		
Group One Oil Corp. (Conoco), University 4-B	¶62½-5355	8587
UPTON COUNTY—		
Bennett Oil Co. (R. H. Gill) & P. H. Williams, Shirk 1	*	2905
Eppenauer Drlg. Co. et al, Chaney 5	150	2434
Gulf Prod. Co., J. H. Shirk 1	145	2685
Weekly Oil Corp. et al, McClintic 1	200	3004
WARD COUNTY—		
Grand Oil Co., Blair-Boogher 1	50	2230
Rector Oil Co., Boogher 1	30	2230
Texas Pacific Coal & Oil Co., H. James 1	210	2355

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
RUSK COUNTY—		
Tex Lloyd et al, W. W. Camp (5-ac) 1	1000	3610
VAN ZANDT COUNTY—		
Pure Oil Co., A. D. Clark (36-ac) 6	3000	2949
A. D. Clark (36-ac) 7	4000	2949
Wylie Enas 1	500	2936
Sun Oil Co., I. W. Thompson 3	15,000	2959

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
The Texas Co., Winfree 1	1200	5488
Sun Oil Co., Chambers Co. 7	2000	4580
Yount-Lee Oil Co., Hindman 1	150	5820
EDNA—		
Jackson Co., Oil Synd., Drushell 8	¶15	3870
ESPERSON—		
Yount-Lee Oil Co., Moores Bluff 3	10	2836
FRESNO—		
The Texas Co., Murdock 1	*	7556
PETTUS—		
United Prod. Corp., Ray 26	100	3945
RACCOON BEND—		
Humble-Valley, Thompson 11	110	3250
REFUGIO—		
Houston Oil Co., Fannie Heard 2-A	600	6462
Heard 1, Blk. 16	250	6449
Moody-Seagraves & Independent O. & G. Co., Heard 1-C	308	6443
The Texas Co., Shelton 2	107	6426
United Prod. Corp., Mitchell 3	530	6437
Luling O. & G., Kay 1, Blk. 79	*	4928
Saxet Oil Co., Fox Heirs 1, Blk. 95	*	3963
United Prod. Corp., Powers 5	650	6461
SARATOGA—		
Rio Bravo Oil Co., Cotton 104-A	*	580
SPINDLE TOP—		
Yount-Lee Oil Co., McFadden 127	750	4800
WHARTON—		
Givan et al, Hudgins 1	*	850

SOUTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ATASCOSA COUNTY—		
Loyd Bender et al, Duderstadt 1	*	2280
BEE COUNTY (Pettus)—		*
United Production Corp., Ray 26	¶20	3951
DUVAL COUNTY—		
Magnolia Pet. Co., Wilson 1	¶20	2250
Buchanan et al, Welder Wood 1	*	1529
FRIO COUNTY—		
United North and South Dev. Co. Little 2	*	3708
JIM HOGG COUNTY—		
Cole Pet. Co., Allen 1	*	3240
NUECES COUNTY—		
Houston Oil Co., Hunter 1	100	4079
Saxet Oil Co., State Nat'l Bank 1	*	5515
SAN PATRICIO COUNTY—		
Saxet Oil Co., Rachel 17 (wo)	40	4903
Cosden Oil Co., Ramsey 1	*	4118
WEBB COUNTY—		
O. W. Killam, Johnson 1	*	2365
J. I. Newton, I. G. Trevino 1	25	1277
SR & C Oil Corp., Trevino 11-A	50	1286

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
LEA COUNTY—		
Landreth Prod. Corp. et al, State 1-C	389	4221
Midwest Ref. Co., Thorpe 11	378	4190
Tidal Oil Co., Grimes 5	10½-8812	4200

Wildcat Reports From All Sections

▼ ▼ ▼

CENTRAL EAST TEXAS

Completion

ANDERSON COUNTY—
Humble O&R Co., J. W. McCaffrey
1 . ..... * 5419
....

ANDERSON COUNTY—Frost Oil Co.'s G. A. Botting 1, A. B. Patton sur, elev 354 ft, Pecan chalk 2934-3158 ft, Austin chalk 3632-3710 ft, cored good show oil in sand 2808-14 ft. Humble O&R Co.'s McCaffrey 1, elev 365 ft, Pecan chalk 2875-3163 ft, Austin chalk 4041-4382 ft, red beds 5352-97 ft, dry and abn 5419 ft.

BOWIE COUNTY—Lee Timberlake et al's Tidwell 2, L. M. Rice sur, elev 290 ft, sd 720 ft. Maud Redwater Oil Co.'s Merritt 1, Y. S. McKinney sur, sd 635 ft.

CASS COUNTY—Wesley Morse et al's Henderson 1, C. C. Bailey sur, dk. Olds-Smith et al's Joe Athenay 1, J. C. Byers sur, sp and sd. John C. Rogers et al's W. Q. Henderson 1, Wm. Davis sur, dr 365 ft; Lanier 1, K. A. Welborn sur, elev 366 ft, top Annona chalk 2144 ft, sd 2275 ft.

CHEROKE COUNTY—Arcadia Ref. Co. et al's Jones Gin Lot 1, Edson Gee sur, elev 481 ft, top Pecan chalk 2978 or 2994 ft, dr chalk 3250 ft. Roy G. Baker et al's M. M. Tomme (40-ac) 1, Wm. Geaorge sur, sp and sd. D. Harold Byrd et al's Fariss 2, elev 215 ft, dr hard rock 721 ft. McDonald Bros. et al's W. A. Newton (113-ac) 1, Thos. Quevedo sur, lcn.

DELTA COUNTY—Delta Dev. Co.'s Hays et al 2, rig. Everts Drlg. Co.'s M. Sansing (40-ac) 1, J. B. Craig sur, lcn. D. S. Hoad et al's J. J. Baker 1, T. P. Eddin sur, sd with trace oil and gas 1550 ft. Worthington & Stedham's W. H. Dejernett 1, E. Chick sur, sd 1350 ft.

ELLIS COUNTY — Foster & Richardson's Moise-Cerf 1, sd 2187 ft. E. M. Rogers et al's J. L. Winn 1, O. Wheeler sur, sd 1360 ft.

FANNIN COUNTY—Ed. V. Parsons et al's Morgan 1, J. E. English sur, elev 668 ft, sd 3501 ft.

FRANKLIN COUNTY—Harper-Byers Oil Co.'s A. J. Laws 1, D. G. Rogers sur, sd 1735 ft.

GREGG COUNTY—W. L. Brandon et al's J. F. Richards (122½-ac) 1, Mary Van Winkle sur, lcn. W. T. Daniel & Mrs. Mamie Hammonds' J. M. Hamby 1, John Lout sur, elev 376 ft, top Saratoga chalk 2361 ft, top Pecan chalk 2508 ft, sd 2630 ft. W. A. Moncrief-J. E. Farrell & Arkansas Fuel Oil Co.'s F. K. Lathrop 1, Wm. Robinson sur, elev 401 ft, Pecan chalk 2458-2889 ft, Austin chalk 3528-3554 ft, cem 7-inch cas 3560 ft, after coring oil saturated sand 3564-80 ft.

HENDERSON COUNTY—H. B. Ashburn et al's T. E. Terry 1, Arron York sur, elev 397 ft, Pecan chalk 2810-3015 ft, sd at top Austin chalk 3993 ft. E. L. Chapman et al's Cade Bros. 3, J. B. Dorsey sur, Pecan chalk 3116-3255 ft, dr 3750 ft.

LAMAR COUNTY—K. O. Bundy-Everett & Allen's G. S. Legate 1, J. V. Cheney sur, dk.

LEON COUNTY—Sun Oil Co.'s Mrs. Ella Grayson 1, Sec. 36, Concepcion sur, rig.

LIMESTONE COUNTY—R. H. Dearing & Sons et al (was Imperator Oil Corp.'s) B. B. Barron 1, E. Mabry sur, dr 1610 ft. Geo. B. McCamey et al's Kosse Townsite 1-A, sd 1515 ft. E. E. O'Bryne & E. L. Chapman's S. W. Hancock 1, H. York sur, sd 1165 ft. Ben Segal & Earnest Hundahl's A. E. Smith 1, M. N. Miller sur, top Pecan chalk 1579 ft, top Austin chalk 2203 ft, dr chalk 2665 ft. A. M. Yost-Scheubert & Bill Reiter's S. J. Fenner 1, H. C. Hoskins sur, dr 3200 ft.

NAVARRO COUNTY—L. G. Priest et al's H. Albritton 1, Bazette area, top Austin chalk 2276 ft, dr 2690 ft.

RED RIVER COUNTY—D. M. Buffington et al's L. H. Moore 1, D. Cornelius sur, Annona chalk 3 to 241 ft, red beds 1383 to 1453 ft, dr 1755 ft. E. L. Chapman et al's Morris-Guest 1, S. Larkin sur, sd 1505 ft. Dropplemen & Bundy's J. W. Cunningham 1, S. V. Chi sur, dr 2280 ft. Johnson Pet. Co.'s Style 1, Dean sur, sd 2215 ft. Echols & Peters' E. Howison 1, W. Humphries sur, lcn.

ROCKWALL COUNTY—A. W. Walker et al's M. S. Jones 1, M. Simmons sur, dr 310 ft.

RUSK COUNTY—J. W. Akin-J. P. Rayzoe & R. H. Dearing's Claude Ashby (2½-ac) 1, elev 447 ft, sp and sd. J. Alford et al's Wallace Thrash 1, R. H. Pinney sur, dk. Geo. S. Anderson et al's Frederick (20-ac) 1, lcn; Frederick 2, rig. Anderson et al's G. T. Moore 1, elev 418 ft. W. D. Anderson-Williamson County Properties' Thrash (17½-ac) 1, M. J. Prue sur, rig. Babcock Bros. & Ann B. Gordon Oil Co.'s W. W. Camp (4-ac) 1 and 2, lcns. Ball et al's D. Bradford (24-ac excess) 1, lcn. Nick Barbare et al's J. T. Brown (36-ac) 1, M. J. Prue sur, rig. Ed. W. Bateman et al (now Humble O&R Co.'s) R. O. Crim 1, elev 403 ft, Pecan chalk 2608-3014 ft, Austin chalk 3480-3552 ft, flowed rate 900 bbls oil per hr. and shut in at 3630-42 ft. Harry W. Bleam et al's Jernigan (17-ac) 1, John C. Snow sur, dk. Burgoyne Bros. et al's J. A. Alexander (93-ac) 1, T. Jones sur, elev 499 ft, sd 2250 ft. Joe Burnham & Lloyd Oil Corp.'s Nicely-Crystal Farms 1, Thos. Obar sur, sp and sd. Burton Drlg. Co. et al's E. B. S. Florey (50-ac) 1, Peter Holmes sur, rig. Capps & Smith's J. L. Cochran 1, J. Roth sur, rig. E. L. Chapman et al's A. P. Finney (20-ac) 1, elev 427 ft, dk. Consolidated Oil Co.'s Camp 1, rig. J. F. Crabtree-Bill Rowe & Cade Johnson's Claude Ashby (2½-ac) 1, sp and sd. Deep Rock Oil Co.'s Mayfield Alford (30.2-ac) 1, elev 421 ft, Pecan chalk 2245-2980 ft, dr 3330 ft. Dan Dillon et al's Frederick (19½-ac) 1, lcn. Geo. Fagg et al's Camp (5-ac) 1, rig. Federated Oil Co. (was United Prod. Co.'s) Mayfield Alford 1, elev 418 ft, rig. Frank Foster-Jeffries et al's Mayfield Alford (9-ac) 1, elev 418 ft, top Pecan chalk 2598 ft, dr 2835 ft. Frank Foster-Deep Rock Oil Co. & Wainwright Oils, Ltd.'s, Camp (7½-ac) 1, dr 2220 ft. Haynes Drlg Co.'s J. T. Brown (40-ac) 1, M. J. Prue sur, elev 486 ft, top Pecan chalk 2740 ft, dr 3080 ft. H. L. Hunt et al's C. D. Ashby 1, elev 391 ft, Pecan chalk 2445 to 3117 ft, top Austin chalk 3412 ft, coring sand 3530 ft; Ashby 2, top Pecan chalk 2600 ft, dr 2675 ft; D. Bradford 2, elev 394 ft, top Pecan chalk 2560 ft, dr 2700 ft. E. M. Jones & Houston Oil Co.'s W. R. Crim (10-ac) 1, Robt. E. Winn sur, sp and sd. Knox et al's E. Melton 1, dk. Karona Oil Co (Claude Heard's) J. N. Peterson (15-ac) 1, Robt. Winn sur, dk. Laster Oil Co.'s D. Bradford 1, Lot No. 14, elev 387 ft, dr 2115 ft. Lewis & Goodman's O. C. Jones (15-ac) 1, elev 507 ft, Pecan chalk 2420 to 3041 ft, top Austin chalk 3497 ft, coring lime 3555 ft. Lide-Taylor Oil Co.'s Calvin Young (40-ac) 1, M. J. Prue sur, elev 475 ft, top soft chalk 2714 ft, top hard Pecan chalk 2755 ft, top Austin chalk 3525 ft, dr 3540 ft. Tex Lloyd et al's Camp (5-ac) 1, elev 408 ft, comp. swab and flow 440 bbls 12 hrs. at 3610 ft. Moss et al's Matthews 1, elev 387 ft, co 2338 ft. Patton & Harrell's Frederick 1, lcn. Pearl Oil Co.'s Eaton 1, F. Cordova sur, dk. John W. Olvey et al's W. R. Crim (20-ac) 1, Robt. E. Winn sur, rig. Robert Oil Corp. & C. V. Welch's Ashby (2½-ac) 1, elev 417 ft, top Pecan chalk 2600 ft, dr 2860 ft. Rusco Oil Co.'s D. Bradford 1, Lot No. 13, elev 397 ft, Pecan chalk 2520-2945 ft, dr 3350 ft. Rusk County Oil Co. (was Files-O'Mara-Meredith's) Robertson (14-ac) 1, sd 1105 ft. Nat Sadler et al's W. C. McElroy-Ed. Sparks 1, Abner Nail sur, spd and sd. Bert J. Shaw Oil Co. & C. Andrade III, et al's Ashby (2½-ac) 1, dr 2370 ft. Tidal Oil Co. & Wm. Johnston's C. E. Holland (15-ac) 1, materials. Wainwright-West Oils, Ltd.'s, Moore 1, materials. Jack Younger & Hill's D. Bradford (5-ac) 1, dk.

SMITH COUNTY—Owen-Sloan Oil Co. & R. H. Davis' J. H. Starnes 1, J. W. Allen sur, elev 379 or 417 ft, Pecan chalk 2738-3052 ft, top Austin chalk 3771 ft, testing sand 4235 ft. T. B. Slick & J. G. Kugle, Jr.'s, M. Freeman 1, A. J. Lagrone sur, elev 498 ft, Pecan chalk 2980-3275 ft, co in Austin chalk 3623 ft, to core in dd.

UPSHUR COUNTY — McGinley Corp.'s Reeves-Truitt 1, L. D. Brown sur, dr 1900 ft.

VAN ZANDT COUNTY—Warren T. Daniel et al's Cumbie 1, John Wright sur, elev 467 ft, Pecan chalk 1690-1730 ft, sd 2275 ft. J. C. Fore & Geo. L. Pace et al's P. S. Hand 1, Wm. Sherman sur, elev 564 ft, Pecan chalk 2420-44 ft, Austin chalk 3452-3893 ft, top Woodbine 4451 ft, sd in sandy-shale 4615 ft. Hart Pet. Co.'s M. L. Cox 1, A. C. Nugent sur, sp and sd and temp. abn. Kelly O&G Co.'s Lunsford 1, J. Conner sur A-151, sd 2300 ft. Neil McElroy et al's R. W. Murphy 1, H. Bailey sur, sd 2700 ft. Texas Chief Oil & Roy. Corp.'s Foster 2, F. Montgomery sur, lcn. Van Oil Assn.'s J. C. Tankersley 1, L. Landers sur, sd 2000 ft. Wilson et al's Stribbling 1, Phillip Mason sur, Abst. 502, lcn. Wittmer O&G Properties' R. W. Beggs 1, H. W. Raquet sur, cem 10-inch cas 105 ft.

VAN FIELD—Cranfill & Germany's Swain (5-ac strip) 1, sp and sd and temp. abn. F. & M. Drlg. Co.'s Flanagan (1-ac strip) 1, M. Gross sur, lcn. Hartt Pet. Co.'s Swain (2-ac strip) 1, sp and sd and temp. abn. Helms et al's C. E. Bogue 1, Marshall University sur, elev 461 ft, sd 2843 ft. Humble O&R Co.'s R. S. Blake 8, cem surface cas; L. V. Freeman 2, top Pecan chalk 1510 ft, top Austin chalk 2445 ft, cem cas 2741 ft. Pure Oil Co.'s N. R. Blake 1, rig; A. D. Clark (2-ac) 8, cem cas 298 ft; Davis 1, dk; R. A. Enos 1, rig; R. A. Howell (47-ac) 3, Pecan chalk 1522-1622 ft, top Austin chalk 2340 ft, dr 2440 ft; D. O. Mayo 2, rig; I. D. Miller 2, rig; R. H. Peters 3, dr 575 ft; L. A. Smith 2, rig; F. B. Smith 3, rig; G. C. Stewart (50-ac) 3, rig; W. F. Swain (20-ac) 4, dk; W. F. Swain (40-ac) 2, sd 2924 ft; O. L. Swain (80-ac) 3, rig; A. G. Tunnell (50-ac) 2, testing production no flow, td 2950 ft; Wells 5, dk; R. L. Wells-A. G. Tunnell 2, rig. Roy Stumpff et al's L. K. Riggs (3-ac strip) 1, elev 455 ft, dk. The Texas Co.'s R. A. Tunnell (100-ac) 5, cem cas 304 ft. Vantex Oil Co.'s Smith (2-ac strip) 1, dk.

WOOD COUNTY—Wood County Dev. Co.'s Ricks 1, D. Fuller sur, temp. abn 1000 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abondoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr — straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

New Mexico Plans Survey

Santa Fe, N. M.—The State Bureau of Mines and the State School of Geology have retained Dean E. Winchester, well known Denver geologist, to make a report on the mineral, oil and gas resources of this state. He is now working on the preliminary draft of a geological map which will show the various oil and gas fields, pipe lines, refineries and location of wells throughout the state.

WEST TEXAS

ANDREWS COUNTY—Deep Rock Oil Co. et al's Kuykendall 1, elev 3217 ft, top anhydrite 1678 ft, salt 1720 to 2810 ft, dr 3185 ft.

BREWSTER COUNTY—Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, ur 2660 ft.

COCHRAN COUNTY—Continental Oil Co.'s Slaughter 1-B, sp (1-19-31). Penn Oil Co. & Kiskadden's Slaughter 1, lcn.

COKE COUNTY—Reid-Hitchens & Stanolind O&G Co.'s Duncan 1, materials.

CONCHO COUNTY—A. W. Turner-Cromwell & Wesner's Brosig 1, sd 1520 ft.

CRANE COUNTY — Continental Oil Co.'s Cowden 1-C, elev 2559 ft, top salt 690 ft, top lime 2280 ft, swab 145 bbls 10 hrs, 2353-2490 ft. Cranfill Bros. Oil Co. et al's J. T. Muir 1, elev 2499 ft, top salt 485 ft, top white lime 2330 ft, dr 4095 ft. Cranfill & Gulf Prod. Co.'s J. B. Tubb 1, elev 2526 ft, top salt 505 to 1400 ft, top brown lime 1410 ft, top white lime 2455 ft, spraying 25 bbls oil, dr hard brown lime 4553 ft. C. C. Duffy et al's Cowden 1, lcn.

CROCKETT COUNTY—J. W. Dieringer et al's G. Barnscorew 1, elev 2519 ft, top salt 955 ft, sd 2504 ft. Taylor-Link Oil Co.'s M. Bullock 1, top salt 1090 ft, sd 2300 ft.

CULBERSON COUNTY—Cranfill Bros. Oil Co. et al's Mrs. J. P. Seay 1, sd 240 ft. Grisham-Hunter Corp.'s Warren 2, sd 1520 ft. W. L. Kornrumpf et al's Garren 1, sd 1180 ft.

DAWSON COUNTY—R. A. Albaugh et al's John Robinson 1, spd and sd.

ECTOR COUNTY — Galt-Brown Co.-Penn Oil Co. Unit Plan's Cowden 1, rig. Southern Crude Oil Pur. Co.'s Cowden 2, elev 3065 ft, top anhydrite 1782 ft, water trouble 1875 ft. H. F. Wurtz et al's Ibbetson 1, elev 2840 ft, top salt 865 ft, dr by bit 3280 ft.

EDWARDS COUNTY—Phillips Pet. Co.'s Holman 2, dr 7270 ft.

EL PASO COUNTY — Tri-State Oil Co.'s Louis Bobadella 1, spd and sd.

FISHER COUNTY — Condor Pet. Co.'s Humble O&R Co.'s Wilson 1, elev 1879 ft, dr 2975 ft. Cranfill-Reynolds Co.'s Willingham 3, sd 3090 ft. Roser-Pendleton, Inc. & Amerada's Gribble 1, sp; Littleton 1, dr 2290 ft. The Texas Co.'s Stephens 2-A, elev 1936 ft, top lime 3225 ft, swabbing with 1200 ft oil in hole 3227-3261 ft; M. Teagarden 2-B, elev 1870 ft, swabbed 10 bbls per hr 3206-13 ft.

GARZA COUNTY—Penny & Porsey's J. D. Justice 1, dk.

GAINES COUNTY—Texas Consolidated Oil Co. & TP Coal & Oil Co.'s E. H. Jones 1, elev 3636 ft, dr 870 ft.

TOM GREEN COUNTY—Cromwell et al's Norsworthy 1, sd 765 ft. Pratt & Hancock's Lewis 2, sd 200 ft.

HOWARD COUNTY—Continental Oil Co.'s Eason 2, dr 1890 ft. Greene Prod. Co.'s L. C. Denman 1, dk.

HUDSPETH COUNTY—G. R. Theison et al's University 1, sp and sd.

IRION COUNTY—Chas. Denny & W. R. Andrews' Tankersley 1, dr 275 ft. Central Oil Co. (W. E. Newton's) H. Horney 2, sd 1330 ft. Stanolind O&G Co.'s W. H. Williams 1, set cas 782 ft. Straughn & Texannati Oil Co.'s Tankersley 1, elev 2306 ft, sd 1437 ft. F. E. Webb et al's Williams 1, elev 2363 ft, sp and sd.

JONES COUNTY — Bomds-Trout-Julian & Gulf Prod. Co.'s M. J. Williams 1, dr 735 ft. J. B. Jameson et al's S. W. King 1, dr 1055 ft. J. L. Hart (was McBest et al's) Roberts 1, sd 1000 ft. Shaheen Oil Co. & Duffy's King 1, elev 1652 ft, sd top sand 1997 ft. Shaheen Oil Co. & Union Oil Co.'s B. King 1, machine. Sam Yingling et al's L. R. Cade 1, top lime 2526 ft, lowering pipe to test 1500 ft oil in hole 2546-47 ft; J. A. Williams 1, lcn.

LOVING COUNTY—The California Co.'s Reagan-McIlvain 6, top salt 740 ft, top Delaware lime 4228 ft and top sand 4258 to 4265 ft, swab 34 bbls oil; Reagan 7, top salt 780 ft, dr 2790 ft; J. G. Allen 2, rig. Carl Cromwell & Atlantic Oil Prod. Co.'s Russell 1, top salt 750 ft, dr 2800 ft. Folbre & Evans' D. P. Dean 1, lcn. Grisham-Hunter Corp.'s Dean 1, lcn. Henshaw et al's Reagan 2, rig. Pete Hoffman et al's Ramsey 1 and 2, lcns. Lewis & Slagle Drlg. Co.'s Cartwright 1, top salt 585 ft, dr 910 ft. C. H. Lockhart et al's F. W. Hubbard 1, sp. Lockhart & Co.'s Allen 4, top salt 724 ft, dr 3735 ft. Miller-Burge & Healy's Chapman 1, top salt 750 ft, top Delaware 4285 ft, dr by tools, td 4356 ft. H. W. Martin et al's Wheat-Russell 1, top salt 750 ft, dr 925 ft. Rush-Anderson & Moor's Wheat 1, dk. West Texas Pet. Corp. (was Eppenauer's) J. G. Allen 2, dk.

MENARD COUNTY—L. G. Priest et al's Sorrell 1, elev 2279 ft, ur 2695 ft.

MITCHELL COUNTY—Lewis Slagel Drlg. Co.'s Bell 1, elev 2278 ft, top lime 1700 ft, sd for shot 2827 ft.

PECOS COUNTY—J. R. Bell et al's H. J. Eaton-Sun 1, sd 625 ft. Bell & Humble O&R Co.'s Scharff-Blackman 1, elev 2426 ft, top salt 940 ft, sd after shot, td 1624 ft. Charlesworth-Messenger Oil Co.'s Butz 1, elev 2519 ft, sd making gas 1282-90 ft. E. L. Chapman et al's Streety 1, elev 2563 ft, sd 2210 ft. C. L. Dittman Drlg. Co. et al's Eaton 2, lcn; Eaton (Sec. 37) 1, elev 2433 ft, top salt 945 ft, dr 1625 ft; Jackson 1, machine. Humble O&R Co.'s H. L. Kokernot 1, elev 3593 ft, top salt 2713 ft, top black lime 3981 ft, fsh 6170 ft. L. B. Lancaster et al's Eaton-Pure 1, machine. Magnolia Pet. Co.'s Eaton 1, dr 150 ft. B. C. Mann et al's Scharff-Blackman 1, dr 1800 ft. McCarty Oil Co.'s Gray 3, sd 1437 ft. J. R. Miller et al's Bennett 1, sd 1835 ft. J. D. O'Mara et al's Bennett 1, elev 2508 ft, sd 1230 ft. Penn Oil Co. et al's J. R. Alvis 1, elev 3493 ft, dr 1515 ft. O. J. Perren et al's Eaton 2, elev 2437 ft, fsh 1765 ft. Pure Oil Co.'s Harrison 1, elev 3495 ft, top Delaware 4265 ft, sd 5000 ft. Rio Grande Oil Co. (Lockhart's) R. D. Webb 1, top lime 2717 ft, pb from 3300 to 3290 ft. Riser & White's Riser 1, sd 500 ft. Eric Schelling & Slaughter's Yates 1, sd 340 ft. Sides & Cloyd's Blackman-Scharff 1, sd 3405 ft. Southern Crude Oil Pur. Co.'s Scharff-Blackman 1, top salt 865 ft, bailing one bbl oil per hr. with water from sandy-lime 2179-85 ft. Williams & Moran's Heiner-State 1, elev 2528 ft, dr 1610 ft.

REAGAN COUNTY—Big Lake Oil Co.'s University 179, sd 4003 ft; University 6-C, lcn.

REEVES COUNTY—The California Co.'s Kloh 2, dr 830 ft.

RUNNELS COUNTY—Chas. Dutton et al's G. W. Dean 1, fsh 2315 ft.

SCHLEICHER COUNTY—Eastland Oil Co. Unit Plan's Tisdale 1, dr 555 ft. Munger-Wilson Oil Co.'s Page 1, elev 2270 ft, sd 5053 ft. Paul Teas & Walter Gant's Allison 1, elev 2311 ft, fsh 4480 ft. J. D. Wesner et al's R. E. Ratcliff 1, sd 750 ft.

SCURRY COUNTY — Camp Springs O&R Co.'s Strayhorn 1, temp. abn 875 ft. R. B. Pender O&G Co.'s Davis 1, elev 2208 ft, top salt 445 ft, sd 5000 ft. Scurry County Oil Exchange's Earnest 1, cellar. Seifert & Dibble's Blackburn 1, top salt 720 ft, sd 2315 ft.

STERLING COUNTY—W. C. Beasley et al's W. L. Foster 1, elev 2518 ft, sd 655 ft.

TAYLOR COUNTY — Adams-Ferguson & Hobbs' Lowe 3, elev 1918 ft, sp. Eastland Oil Co.'s Hunter 2, elev 1874 ft, swab 60 bbls oil and 90 bbls water 24 hrs after shot 7 qts. at 2384-97 ft, td 2750 ft. Geo. Goodrum et al's L. Ackers 1, lcn. J. B. Jameson et al's Webb 1, elev 1905 ft, re-cem 3-inch cas 6251 ft. Sanger et al's Abilene fee 1, dr 2535 ft. Sanger O&R Co.'s Osborn 1, rig.

TERRELL COUNTY—Big Bend Oil Corp. et al's Bassett 1, elev 2396 ft, sd 2670 ft. Mid-Kansas O&G Co.'s Goode 1, elev 2405 ft, dr 5475 ft.

VAL VERDE COUNTY—O. O. Owens et al's Mills 1, elev 2130 ft, sd 5760 ft. Phantom Oil Co.'s Ingram 1, sd 3035 ft.

UPTON COUNTY—C. F. Corzelius et al's Shirk-Tidal 1, top salt 1015 ft, dr 1950 ft. C. C. Duffey et al's McClintic 3, top salt 1100 ft, sd 2607 ft. Gulf's McElroy 90, top salt 1130 ft, dr 2800 ft. Humble O&R Co.'s Damron 1, top salt 1230 ft, top lime 2868 ft, top white lime 2910 ft, dr 3375 ft; Ricker 15, top salt 525 ft, cem cas 2056 ft. Penn Oil Co. & Shell Pet. Corp.'s Halamacek 1, elev 2806 ft, top anhydrite 1535 ft, top salt 1568 ft, dr 2865 ft. TP Coal & Oil Co.'s King 1, top salt 1150 ft, sd 2440 ft. Weekly Oil Corp. et al's Shirk 1, elev 3080 ft, top salt 1025 ft, top lime 2495 ft, pb from water 2742 ft to test upper lime.

WARD COUNTY—California Co. & Atlantic's S. R. Allen 1, top salt 2296 ft, top lime 2344 ft, show oil 2644-55 and 2680 ft, testing 2680 ft; Ann B. Gordon 1, rig. Empire Gas & Fuel Co.'s Sealy 1, elev 2654 ft, top salt 1175 ft, top lime 2320 ft, fsh 2530 ft. Gulf Prod. Co.'s Hutchings 6, top salt 1155 ft, top lime 2300 ft, dr 2500 ft; O'Brien 16, top salt 1195 ft, dr 1230 ft. J. G. Kugle et al's Chas. Wallis 1, dr 1800 ft. Magnolia Pet. Co.'s Atlantic-Sealy 1, driving 15½-inch cas 560 ft. R. F. Owen et al's Johnson 1, elev 2499 ft, dr 1610 ft. Prairie O&G Co.'s G. P. Hill 1, dr 235 ft. Rickford & Smith's Johnson 1, elev 2441 ft, top salt 798 ft, dr 1290 ft. Paul Ryan et al's E. R. Allen 1, machine. Shipley Oil Corp.'s Hayzlett 5, top salt 725 ft, dr 770 ft; Monroe 1-A, elev 2655 ft, top salt 2485 ft, fsh 3780 ft.

WINKLER COUNTY—Magnolia Pet. Co.'s M. J. Bashara 1, top anhydrite 829 ft, top salt 996 ft, top lime 2317 ft, cem cas 2436 ft; J. B. Walton 1, dr 690 ft.

SOUTH TEXAS

SOUTH TEXAS CATS.

ATASCOSA COUNTY—Loyd Bender et al's Duderstadt 1, nw corner of county, sd in Edwards at 2280 ft for orders. Gardener and Mathis, Chattanooga, Tenn., 1, in Amphion section, 4 miles n of Jourdanton, to spud by July 1.

BASTROP COUNTY—Bolling et al's (Chas. Long) McWilliams 1, George T. Glasscock sur, offsets L. I. Dodwell Brundige 1, sd at 2240 ft. Pacific O&G Co.'s Litton 1, sd 2520 ft..

BEE COUNTY—Barnsdall Oil Co.'s Roberts 2, Cosden area, se of producers, lcn. Independent O&G Co. and Moody-Seagraves-Morgan Corp.'s Welder 1, 12 miles se of Beeville, Henry Lyles sur, coring just above 5000 ft. E. S. Price's Weiss 2, 3½ miles se of Ray-McKinney discovery pool, failed to get drill stem test of sand at 4536-46 ft, on three attempts seat failed to hold. Simms Oil Co.'s Holzmark 2, 5 miles sw Nichols pool, preparing to bail at 3778 ft, pipe perforated at 3490-3520 and 3730 to 3750 ft, casing set to 3778ft. Rowan and Hope's Fannie Goree 1, 5 miles w of Grayburg area, T. B. Barton sur, rigging up. United Production Corporation's Ray 26, Pierce Miller sur, gasser, spraying some gasoline, 900 pounds pressure, casing set on top of sand 3941 ft, bottom of hole 3951 ft. Grayburg Oil Co.'s Kimball 1, 7 miles sw Pettus pool, lcn.

BEXAR COUNTY—Penn Oil Co.'s Cooksey 2, 400 ft nw of No. 1, discovery test, in Rialls No. 11 sur, to bld dk. Pen-Tex O&G Co.'s Dobrowolski 4, to make lcn. F. W. Tong's Willie Sandemer 1, John Montez sur, sd 1170 ft for orders. Euchert et al's Palfrey 1, 6 miles se of San Antonio on Goliad road, dr 1230 ft in Taylor.

BLANCO COUNTY — Adams and Lysles' Leeders 1, James Standford sur No. 29, 5 miles w Blanco City, dr about 700 ft. Meeks et al's Walker 1, ne cor Noel Nixon sur, No. 23, fsh 935 ft. Forest Oil Co.'s (Rosenfield et al) Hohenberger 1, sur 94, dr 510 ft. Hardy Sutton's McMillen, 2 miles w Blanco City, sd 630 ft.

BROOKS COUNTY—Ed East's B. Garcia 3, Las Mastena Y. Gonzalene Grant in Lassiter area, spudded. Houston Oil Co.'s Wormser 3, Pala Blanco de Maguellas Grant, ru.

CALDWELL COUNTY—J. E. Mills et al's McMahan 1, 9 miles se Lockhart in Pinchback sur, casing set at 2127 ft, bottom of hole 2160 ft, prep to put on pump, show some 39.1 gravity oil.

COMAL COUNTY—Caldwell and Lanier's T. J. Byler 1, HE&WT sur. No. 4894, prep to re-dr at 600 ft.

DE WITT COUNTY—Shell Pet. Corp. (formerly Penn Oil Co.), Fritz Junker 1, John F. Pettus sur, 2 miles ne of Meyersville, dr abt 5895 ft, 6⅝-inch casing set 5457 ft.

DUVAL COUNTY — Southern Oil Co.'s King-Harper 2, sur 323, in Cole area, lcn. Magnolia's Wilson 1, sur 136, offset to discovery test, prod 25,000,000 cu ft gas, 625 lbs. rock pressure. Casing set top of sand at 2244 ft, bottom of hole 2250 ft. F. M. Frasher and R. F. Schoolfield's Bishop Duval Land Co. 2, sur 135 ft, ru. Vacuum Oil Co.'s Duval County Ranch Co. 1-A, sur 280, dr 3072 ft. Humble's Kohler 50, sur 164, fsh 2843 ft for core barrel. Buchanan et al's Welder Wood 1, sur 215, tested fresh water and small amount oil in sand at 1529-31 ft, abn. Gulf's Mrs. R. Sheaffer 1, dr 1929 ft.

EDWARDS COUNTY—Phillips Pet. Co.'s Hollman 2, sur 25, dr below 6750 ft.

FRIO COUNTY — Wray and Dunbar's Barnes 1, 1 mile from Bigfoot, sec 123, set

casing on packer at 3420 ft, bottom of hole 3708 ft, Edwards topped at 2662 ft, washed down, prep to bail. United North and South Dev. Co.'s Little 2, in J. J. and Sallie Little ranch in nw corner of county, abandoned at 1757 ft, showed some gas and oil, but failed to make producer.

GOLIAD COUNTY — United Prod. Corp., Ray 28, in 416.5-acre E. Ray tract, dr 1688 ft in shale and lime. T. B. Slick estate's Dr. G. W. Allen 1, 1500 ft se of discovery test, clearing location; W. H. Riedel 1, to make lcn.

GUADALUPE COUNTY—Humble's L. G. Denman 21-A, Darst Creek , lcn. Magnolia's Klein 6, prep to dr in 2604 ft; Annie Knodle 5, dr 2530 ft in Del Rio. Luling O&G Co.'s Nixon 1, 2200 ft from s and 3300 ft from w line of Nixon 908-acre tract, east of Darst Creek, abt 1 mile e of Nixon well drilled by Magnolia about 1 year ago, lcn.

HAYS COUNTY—Harley and Whittington, Heidenreich 1, near Kyle, cored oil and gas sand at 2288 ft.

JACKSON COUNTY—Trinity Drillers Hungerford 1, 2 miles east of Edna gas field, dr 1760 ft.

JIM HOGG COUNTY—J. W. Pippin's N. Hinnant 1, blk 11, sur 147, dk. P. H. Wilson's Edds 1, sur 209, dr 3000 ft. J. D. Pulliam, Jr.'s, Jones 1, Share 5-A, Holden sub, Diego Hinojosa Grant, standing 2844 ft. Cole Pet. Co.'s W. P. Allen 1, blk 7, sur 23, abn 3240 ft.

KERR COUNTY — Evans and Gant's Jeff Love 1 (discovery test), sec 1594, CCSD & RGNG Ry. Co. sur, rept to be flowing by heads at 3374-3391 ft, no definite information in production; was pumping about 55 bbls oil and 250 bbls water daily; Seiker and Mears 1, sw corner section 1605, 3 miles ne Love test, moving on; Estle Young 1, nw cor of sec 28, north and slightly east of Love well, lcn.

KARNES COUNTY—Fort Bend Oil Co.'s Newberry 1, sd 2992 ft, showed 100 lbs. gas pressure. J. Morrisey's Cochran 1, sd 1012 ft.

LA SALLE COUNTY — Fred W. Volz's Coleman 1, surface csg set 40 ft, sd.

LAVACA COUNTY—Cranfill and Reynolds' Hermes 1, ne corner William Ryan sur, near Koerth, dr abt 1200 ft.

LIVE OAK COUNTY—Houston Oil Co.'s Boothe 1-A, M. B. Kivlin sur, 3600 ft ne of Mt. Lucas gas field, prepare to pull tubing, top of pay 5266 ft, bottom of hole 5277 ft, 6⅝ inch casing set at 5266 ft; Cartwright 22, 500 ft e of Mt. Lucas gas field, prepare to dr deeper after changing over to larger pipe, hole at 6023 ft. Brown Land and Cattle Co. 3, nw corner of M. B. Kivlin sur, dr 2700 ft; Brown Land and Cattle Co. 4, sw cor of M. B. Kivlin sur, set 576 ft 13⅜ inch casing. Pickett, Buzzini and Jacobs Kay 1, Bridget Faddin sur, 5 miles e of George West, coring abt 2812 ft.

MAVERICK COUNTY—Rycade Oil Co.'s Sullivan 5, blk 7, center of sec 82, dr 7420 ft.

NUECES COUNTY—Houston Oil Co.'s Ollie Purl 1-B, lot 1, blk 7, Ross Peters subdivision No. 2, Agua Dulce Creek area, dk up, prep to ru; Hunter 1, 5 mi w of Corpus Christi, in Saxet field, sec 591, prod 100 bbls oil in sand at 4066-79 ft, 1400 lbs. pressure on tubing, 1700 pounds pressure on casing, not fully completed. Saxet Oil Co.'s State National Bank 1, in Saxet area, plugged back from sand at 5515 ft, casing set at 2452 ft and new bottom of hole 2465 ft, swabbed salt water and some gas, now abn. Grimm and Yakey's William Bauer 1, north of Robstown, dr 3450 ft. Moody Seagraves Morgan's Smith 1, J. Dunn sur, 5 miles w of Corpus Christi, ¾ mile from Dunn 6 well, dr 4256 ft in sand and shale, showing some gas. Made large gasser at 4088 ft. H. H. Wheinert's Mohle 1, sec 94, sd 452 ft. Callahan Oil and Gas Co.'s Allen 2, blk 76, Garcia sur, sd 2100 ft. Bowers et al, Pryor 1, Stevens sur, sd 400 ft.

REAL COUNTY—Evans & Sprinkle's Marcus Auld 1, 5 mi nw of Love producer, sec 15, blk D, HE&WT Ry sur, dr 300 ft in sandy limestone; Haby 1, (formerly McGinley Corp.) 7 miles s of Love well, sw ¼ of sec 175, AB&M sur, No. 17, surface csg set abt 400 ft. Gant and Kilgore's Auld 1, s of Love test, sw cor of sec 23, dr contract let to Eastland Oil Co. to move on immediately.

REFUGIO COUNTY—C. F. Nichols' Wood 1, E. St. Johns sur, near Bee County line, no report, test was at 3680 ft at last report. Morgan and Rutherford's Rogers 1, one-fourth mile north of L. L. Smith's Rogers 1 producer, 3 miles w of Refugio, tested salt water at 3684 ft. Houston Oil Co.'s Rooke 1-B, several miles sw of Refugio production, several drill stem tests of sand at 6194 ft failed, setting casing. L. L. Smith's Rogers 2, 3 miles w of Refugio townsite, dr deeper from 3600-3700 ft sand, well showed considerable water with oil.

SAN PATRICIO COUNTY—Saxet Oil Co.'s Rachel 17, White Point field, work over, plugged back from 6000 to 4903 ft. set 22 ft screen, producing abt 40 bbls oil daily at 4872-4903 ft; Carroll 1, rigged up, no later report. Cosden Oil Co.'s Powell 1, 1 mile e of Oden, sd 4530 ft fo rwater, dr new water well; Ramsey 1, sd 4118 ft, contract depth, for orders. LaFeria O&G Co.'s Smith 1, sd 4190 ft. Peterman et al's Crow 1, sd 4100 ft.

STARR COUNTY — Los Olmos Oil Co.'s Kelsey-Bass 2, blk 6, Porcion 75, 76, 77, Carmargo Jurisdiction, standing at 269 ft. Kusk and Duerkson's Kelsey Bass 1, blk 9, Porcion 75, 76, 77, Camargo Jurisdiction, dr 830 ft. Sacremento O&G Co.'s Seabury et al 1, Share 5, Porcion 75, Carmargo Jurisdiction, 8-inch casing set 349 ft, woc.

TRAVIS COUNTY — Fort Bend Oil Co.'s Martin Enzlemann 1, James P. Kempe sur, just across Williamson County line, showing oil at 790 ft, heavy saturation in core, showing some gas.

UVALDE COUNTY — Phantom Oil Co.'s Claudt 1, sd 2710 ft. Waldrup and Welsh's Benson 1, sd 1620 ft.

VICTORIA COUNTY—Attex Drilling Co.'s West 1, 3 miles ne Nursey, sd 1820 ft, last report. Texas Co.'s McFadden 2, 1 mile ne of No. 1, lcn.

WEBB COUNTY—O. W. Killam's Johnson 1, sur 1617, Reiser area, lcn; Cuellar 1, Share 4, Cuellar Grant, Cole area, abn 2365 ft after testing salt water in sand at 2361-2365 ft; Cuellar 2, Share 4, Cuellar grant, set 39 ft 10-inch csg, wait on cement; Bruni 1, sur 77, testing sand at 2949-55 ft, 6⅝-inch casing set at 2947 ft. Magnolia's Peal 1, Share 3, Cuellar Grant, Cole area, dr 2491 ft, showed salt water at 2381 ft. Uaher Carson et al's Benavides 3, sur 1613, dr 600 ft.

WILLIAMSON COUNTY—A. M. Keisker's Bruns estate 1, 1 mile northeast of Travis line, dr about 760 ft. J. N. Whisenant et al's J. K. Lawrence 1, 2 miles northeast of Chapman field, 1170 ft from w line and 720 ft from s line of lease, spudded. W. A. Ewing's Rummel 1, Peter Cartwright sur, near Pflugerville, dr 465 ft.

WILSON COUNTY — Rycade Oil Co.'s Johnson 1, nw part of county, near Lavernia, J. M. Balamasta sur, dr about 2895 ft, top of chalk 2860 ft. Stover and Wren's Reuss 1, Trevino sur, dr abt 1800 ft, last report.

ZAVALLA COUNTY—Texas Gas Utilities (Cribbs and Davidson) Pryor 3, 600 ft nw of Pryor 2 gas well, lcn.

ZAPATA COUNTY—O. W. Killam's Killam 2, sur 182, Mirando Valley area, dr 856 ft; Cuellar 38-B, sur 277, Cuellar pool, sand at 1576-81 ft, 6⅝-inch casing set 1576 ft, wait on cement; Cuellar 39-C, sur 278, Cuellar pool, dr 1225 ft; Slator 3, blk 78, Borrego grant, dr 1510 ft. Grim and Yakey & Nordan and Morris' S. Bustamente 1, Share 34, Fansler Partition, Comitas grant, lcn abn. Nordan and Morris' E. B. de los Santos 3, share 7, Fansler Partition, Comitas Grant, dr 125 ft. Allied G&O Co. and Allen and Morris' E. Gutierrez 12, Share 4, Fansler Partition, Comitas Grant, standing 100 ft. Claypool and Nixon's Garza 1, blk 11, subdivision Zorro Ranch, Comitas grant, dr 800 ft. J. I. Newton's I. G. Trevino 1, blk 7, sur 65, prod 25 bbls oil in sand at 1259-1277 ft, casing set 1259 ft. S. T. Phelps, trustee's, (Blankenship), Garza 2, blk 2, sur 413, coring 1630 ft. Shankle and Newton O&G Co., Inc.'s, Gutierrez 7, share 4, Comitas Grant, lcn; Gutierrez 8, share 4, Comitas Grant, lcn. S. R. C. Oil Co.'s F. Cuellar 1, blk 16, sur 62, lcn; F. Cuellar 2, blk 8, sur 19, dr 1570 ft; Trevino 11-A, prod 50 bbls oil in sand at 1257-86 ft. J. H. Winch's A. Bustamente 1, blk 7, share 5, Fansler Partition, Comitas Grant, set casing 1424 ft, sand at 1425-30 ft, showed about 30,000,000 cu ft of gas through tester, now waiting on cement. Mid-West Public Utilities Co.'s M. P. de Garza 1, blk 33, Pedernal Grant, testing sand 1560 ft. John Pappas Pool, Inc.'s, Flores 1, Porcion 35, 6000 ft from Rio Grande River, lcn. Mackenzie and Talmadge's G. F. Trevino 1, standing 562 ft. William Marks' Flores 1, blk 36, Marks subdivision, Porcion 37, dr 1800 ft.

EAST TEXAS

Completion

Company, Well and Location	Initial Production Bbls.	Depth
PANOLA COUNTY (Bethany)—		
Texas Co., G. W. Brumble 6, Evans Bracken sur	*	2640

HARRISON COUNTY — Hunter et al's Daugherty 1, Burris sur, arr abn at 3568 ft and skid over for new hole (formerly Shell Rock Pet. Corp.'s test).

MARION COUNTY—Trammell et al's Hussey 1, Chas. Lockhart sur, elev 282 ft top chalk 1771 ft, claim oil show in hd chalk near bot hole cemtd 8-in 1514 ft, trying go over broken ds with 6-in cas td 1878 ft. Rondeau & Hindman's McGaugherty 1, W. J. Wills sur, dk, Hindman et al's Lindsey 1, Alex Albright sur, dk.

PANOLA COUNTY—Knott et al's Marion Durham 1, Chas. Haley sur, 6⅝ cas 2670 ft, cemtd 5 3/16 2977 ft, tested 50,000 ft gas hfsw wo td 2988 ft. Smith et al's Hunt 1, Albert Johnson sur, dk. Bell et al's Burnett Lbr. Co. 1, S. B. Hendrick sur, 8⅛ cas 2027 ft, dr shale 2924 ft. Creighton & Hart's Kyle 1, J. Tippet sur, elev 349 ft, top chalk 1444 ft top Blossom 2216 ft, blew out making some mud, gas and sw wo td 3704 ft. Warren & Dawes' Mc-Neese 1, A. Bocker sur, dk. Dillon & Bradham's Baldwin 1, Hampton West sur, 12½ cas 43 ft, dr shale 350 ft. Texas La. Prod. Co.'s Baker 1, B. C. Jordan sur, 9-in 3450 ft, 6⅝ cas 4575 ft, coring lime 4685 ft. National Gas Prod. Co.'s H. H. Alvord 1, B. C. Jordan sur, 10-in 1160 ft, sd repr rig 4100 ft. Roquemore 4, B. C. Jordan sur, dr 2250 ft. Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, 12½ cas 180 ft. dr shale 1100 ft.

SABINE COUNTY—Loring Oil Co.'s Nona Mills Lbr. Co. 1, Jas. Mason sur, ta 4803 ft.

SHELBY COUNTY — Chapparal Oil Co.'s Holt 2, Matthew Moore sur, sd wo rotary td 3111 ft.

TEXAS GULF COAST

AUSTIN COUNTY — Arkansas Nat. Gas Co.'s Machemehl 1, dr 3160 ft gumbo. O'Hara et al's Schrader 1, dr 3292 ft shale. Empire's Kunze 1, San Felipe, dr 5560 ft lime.

BRAZORIA COUNTY—Thos. Faust's Fee 6, 2 mi s Nash dome, dr 5690 ft in shale. Steele & Strickland's Lochridge 1, near Lochridge, sd 50 ft. Rycade's Wisdom 27, Nash Dome, set 6⅝ inch cas 5646 ft. Rycade & Amerada's Seaburn 2, Stratton Ridge, dr 5810 ft in shale. Freeport Sulphur Co.'s Fee 2001, Bryan Mound, gas show at 4590 ft. The Texas Co.'s Ewing 1, Manvel, sdtr 7180 ft Layne et al's Wisdom 7-A, Damon Mound, dr 2900 ft shale. Mills Bennett's Randon 2, Allen, dr 2890 ft anhydrite, Reese 2, dr 2800 ft, anhydrite Allen 3, set 13⅜ in cas 1180 ft. United Oil Synd's Speer 1, 3 mi n Danbury, dr 710 ft shale.

BURLESON COUNTY — Mid South Oil Co.'s Duckworth 1, 2 mi e Clay Station, cored shale 2510 ft.

CHAMBERS COUNTY—Pure's Lost Lake 5, Lost Lake, sd 5840 ft. Shell's Herff 2, Moss Bluff, dr 6110 ft sand and lime. Texas Gulf Sulphur Co.'s Moss Carter 1, Moss Bluff, lcn.

FORD BEND COUNTY—Gulf's Davis 61, Big Creek, dr 2880 ft lime. Long Point Oil Co.'s Fee 1, Long Point, set 6⅝-in cas, bailing open hole.

GALVESTON COUNTY—Gulf's Smith 10, High Island, prep to set screen.

GRIMES COUNTY—Dearing & Son's Templeman 1, mi s Navascta, washing to bottom.

HARDIN COUNTY—D. O. Speight's Gidrey 1, 4 mi s Batson, sd 3000 ft. The Texas Co.'s Fee 307, Sour Lake, prep to test.

HARRIS COUNTY—Humble's Minnetex 4, Mykawa, dr 5230 ft shale, Gehring 1, Mykawa, set screen 4870 ft. Cypress Oil & Dev. Co.'s Kitzman 2, 2 mi n Cypress, dr 4400 ft shale. Gulf States Oil Co.'s Augsperger 1, 8 mi n Court House, sd 3920 ft. Gulf's Manchester 2, Pierce Junction, dr 3470 ft lime. Kouri & Grayburg's Bender 1, Pierce Junction fsh 4020 ft.

JACKSON COUNTY—Wright Bros.'s Lee 2, sd 4140 ft. Warner-Quinlan's Hungerford 1, 1 mi n Edna, dr 420 ft gumbo.

JEFFERSON COUNTY — The Texas Co.'s Pipkin 4, Big Hill, dr 2940 ft rock. Humble's

McFadden 1, 8 mi e Big Hill, dr set 13-in cas 1940 ft. Keith et al's Reid-Hankamer 1, 3 mi ne Atterbury, dr 2040 ft shale.

LIBERTY COUNTY—Hamm et al's Harvard 1, Davis Hill, dr 1020 ft gumbo. J. R. Ingram's Hornbeck 1, 2 mi s Cleveland, dr 800 ft gumbo. Harrison & Abercrombie's Blewett 1, North Dayton, dr 4400 ft shale. Harrison Oil Co.'s Quintette 4, n Dayton, dr 4790 ft shale. Gulf's Ezzell 1, Hankamer, dr 6840 ft shale. Tucker et al's Bell 1, Devers, dr 570 ft gumbo. Gulf's McFadden 3, Moss Bluff, dr 2950 ft sand. Humble's Sterling 7, Moss Bluff, ru; Breeden 2, Moss Bluff, dk.

MATAGORDA COUNTY—Empire's Bokar 1, Citrus Grove, pulling screen 6290 ft.

ORANGE COUNTY—Crews Oil Co.'s Mansfield 1, lcn. Gulf's Miller-Vidor 1, 2 mi n Vidor, dr 65 ft clay.

VICTORIA—The Texas Co.'s McFadden 2, Bloomington, bldg. dk.

WASHINGTON COUNTY—Yegua Oil Co.'s Graves 1, 3 mi n of Independence, dk. Penn-Tex Oil Co.'s Kamas 2, Brenham, ru. Sun's Janner 4, Clay Creek, dr sale 4030 ft top of salt 3865 ft; Freeman 1, Clay Creek dr 3570 ft salt, top 3365 ft.

SOUTH LOUISIANA

ACADIA PARISH—Yount-Lee's Latrielle 9, Evangeline, reaming to bottom, 8650 ft.

CALCASIEU PARISH — Wilfred Lahay's Jardell 1, 2 mi e Vinton, dr 3040 ft. w.s. Union Sulphur Co.'s Moss 2, Lockport, fdn. J. O. Davis' Ind. Lbr. Co. 1, 8 mi n Starks, prep to set cas. Gulf's Moore 26, Starks, lcn. Vacuum's Waite 1, Iowa, prep to set cas 5000 ft.

CAMERON PARISH—Magnolia's Land Co. 2, Sweet Lake, lcn. Pure's Yount-Lee 10, Sweet Lake, dr 5020 ft shale. Shell's Watkins 16, Black Bayou, dr 2430 ft shale; Black Bayou State 2, Black Bayou, dr 1000 ft shale. Vacuum's Cameron Meadows 1, e of Johnstons Bayou, prep to bail 3850 ft. The Texas Co.'s Calcasieu State 6-A, S. Calcaieu Lake, set 9⅝-in cas 3762 ft; Calcasieu Lake State 7, lcn.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peigneur 10, Jefferson Island, set 6⅝-in cas 1700 ft; Lake Peigneur 11, lcn. The Texas Co.'s Vermilion Bay 6, Vermilion Bay, dr 880 ft sand.

IBERVILLE PARISH—Gulf's Gay 1, Bayou Choctau, dr 3330 ft lime. Standard's Wilbert 8, Bayou des Glaise, dr 3900 ft sand; Schwing 1-A, Bayou Blue, coring sand 5060 ft; Schwing 3, Bayou Blue, dr 2990 ft shale. Shell's Wilbert 5, White Castle, prep to make oriented survey, 5210 ft. Texas Gulf Sulphur Co.'s Wilbert 6, Bayou Choctau, dr 580 ft gumbo.

JEFFERSON PARISH—H. T. McClain et al's Atterbury 1, Wlesh, dr 3420 ft gumbo.

PLAQUEMINES PARISH — Gulf's Buras Levee 2-B, Rose Dome, set 10¾-in cas 900 ft. Humble's Cockrell-Moran 2, Lake Grande Ecaille, reaming 4020 ft. The Texas Co.'s Garden Island 4, Garden Island Bay, dr 4680 ft shale; Garden Island 5, Garden Island Bay, lcn.

ST. JAMES PARISH — Convent Oil Co.'s Jacobs 1, prep to swab well 1830 ft.

ST. LANDRY PARISH—Gulf's Haskins 4-A, Port Barre, dr 2840 ft lime. The Texas Co.'s Botney Bay 9, Port Barre, ru.

ST. MARTIN PARISH—Harrison & Abercrombie's Barras 1-A, set 12½-in cas 2770 ft. The Texas Co.'s Iberville Ind. Co. 3, Hager Dome, dr 670 ft sand. The Texas Co.'s St. Martin Land Co.'s 5, Hager Dome, dr salt 3450 ft. Humble's Woodward 1, Bayou Boullion sdtr 4960 ft. Humble's State 4, Bayou Boullion sdtr 3845 ft.

ST. TAMMANY PARISH — Washington & St. Tammany Dr. Co.'s Coussack 2, sd 1560 ft.

TANGIPAHOA PARISH—Joan Dev. Co.'s Lake Superior Piling Co.'s Prep to set 4½-in blank before testing.

TERREBONNE PARISH—La. Gas & Fuel's Minor Estate 1, Houma, 4010 ft, may abn. The Texas Co.'s Bay Junop 2, Bay Junop Dome, Waiting on flanges; Lake Pelto State 6, Lake Pelto pumped 90 bbls fluid in 12 hrs, 60% water, breaking down d.s. Bay St. Elaine 5, Bay St. Elaine, dr 1660 ft salt top 1463 ft; Bay St. Elaine 1, dr 100 ft shale; Lake Barre 7, Lake Barre dr 3805 ft; sand, slight oil show prep to set 9⅝-in cas; Lake Barre 8, dr 1650 ft gumbo.

WEST FELICIAN PARISH—Putnam Synd's Como Plantation 1, fsh 850 ft.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BIENVILLE PARISH—		
S. P. Boden et al, Thomas 1, 27-16-9w	*	4875
CADDO PARISH (Rodessa)—		
United Prod. Corp., French 1, 34-23-16	¶20	5522
DE SOTO PARISH (Holly)—		
Standard Oil Co. of La., Hoell 1, 32-14-13	*	2933

BIENVILLE PARISH—S. P. Borden et al's Thomas 1, nw nw 27-16-9w, sw abn, td 4875 ft, 7-inch cas 4033 ft. Cagle Bros.' Lawhon 1, 15-16-8w, dr 2410 ft.

BOSSIER PARISH—Andrews & Davlin's Nattin 1, 15-22-14, sd 1576 ft. H. I. Morgan et al's Kendricks B-10, 22-19-11, dr lime 1917 ft. Rambaugh et al's Allison 1, 10-19-13, dry, sd 1100 ft.

CADDO PARISH — United Prod. Corp.'s Wall 1, 33-23-16, cemtd 7-inch cas 5160 ft, dr plug; French 1, sw nw 34-23-16, 7-inch cas 5102 ft, completed making 20 mil ft gas rock pressure 2350 pounds first hour and half in bro sand and lime, td 5522 ft, elev 230 ft. Junior O&G Co.'s Breard 1, 9-18-16, dr bro lime 2570 ft. Libby et al's Foster 1, 2915-16 ft, sd 1600 ft.

CATAHOULA PARISH—National Drilling Co.'s Marsh McMillian 1, 26-9-6e, 6⅝ cas 2796 ft, tested sw sd 3086 ft.

CLAIBORNE PARISH—Baird Bros. et al's Whittaker 1, 30-20-7w, sd 2200 ft. Bough et al's Alexandria 1, 27-20-8w, sd 2200 ft. Prairie O&G Co.'s F. B. Shackelford 1, se ne 30-23-5w, elev 226 ft, 12½ cas 611 ft, top anhydrites 3889 ft, 9-inch 3918 ft, missed ds in bro sand 4668-98 ft, dr gumbo, shale and lime 4890 ft. La. O. R. Corp.'s Langston 10, 19-21-7w, cemtd 9⅝ cas 2438 ft, dr hard sand and rock 2821 ft.

CALDWELL PARISH—Hudson et al's Burton 1, 36-12-2e, sd 2507 ft.

CONCORDIA PARISH—Joe Marr et al's Maxwell 1, 35-3-8e, sd 3622 ft.

DE SOTO PARISH—J. W. Clark's Tidwell 1, 22-13-14, 6⅝ cas 2910 ft, tested sw show oil and gas 3130 ft, plugged back 3125 ft, did not shut off sw, sd td 3130 ft. W. H. Weichert's H. Smith 1, 31-14-15, top gas sand 1653 ft, top chalk 1901 ft, sd repr rig 2306 ft. Standard Oil Co. of La.'s Hoell 1, sw sw 32-14-13, 10-inch 82 ft, dry abn, td 2933 ft. W. H. Farmer A-5, se sw 32-14-13, rig. Neff et al's Dowling 1, se se 18-13-14, base chalk 2040 ft, dr 2350 ft; Ramsey 1, 33-13-16, sp dr 50 ft. S. A. Guy et al's Dowling Bros. 1, 31-14-14, sd 1354 ft.

LA SALLE PARISH—La. G&F Co.'s Tensas Delta B-2, sw ne 23-7-4e, 9-inch 982 ft, tested sw 2641 ft, arr deepen.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, sp 10-inch 60 ft, dr 200 ft. Gulf Ref. Co.'s Bodcaw Lbr. Co. 1, sw ne 13-13-8w, 12½ cas 930 ft, dr bro lime 2940 ft. W. M. Coates et al's Collins 1, 28-9-10 base chalk 2612 ft, sd 3718 ft. J. W. Cooper et al's Cooper 1, 35-11-10, dr 2765 ft; Cooper 2-A, 35-11-10, top chalk 1400 ft, washing to bot, td 1425 ft.

RED RIVER PARISH—Lucky Strike Oil Co.'s Chaffraix 1, 33-12-10, tested est 500 bbls sw show light oil thru ds 2820-3010 ft, arr plug back and shut off sw, td 3010 ft.

SABINE PARISH—Pearce, Tr.'s, Pearce 1, sw sw 10-7-11, 6⅝ cas 2339 ft, tested 150 ft oil in hole, wo, td 2600 ft. Lawrence et al's Hubley 1, 21-7-11, sd 2650 ft. J. C. Walton's Sabine 1, ne nw 11-7-12, rig. Loring Oil Co.'s Bowman-Hicks 15, nw se 2-7-12, sp 10-inch 105 ft, dr 2200 ft. McDaniels et al's Batson 2, 16-8-12, 6⅝ cas 2190 ft, arr run tub, td 2625 ft. Lacey Jesup Oil Co.'s Brown Lbr. Co. 1, se ne 28-8-10, 6-inch 2256 ft at top Z. marl, top chalk 2690 ft, sd 3160 ft. Lacey Pet. Co.'s Cooper 1, 30-8-11, top Z. chalk 2306 ft, 6⅝ cas 2270 ft, hfo heading occasionally, wosr, td 2620 ft. Eylers O&G Co.'s Fraser 1, nw sw 10-8-11, elev 307 ft, top Z. marl 2160 ft, 8¼ inch cas 2150 ft, sd 2650 ft. R. L. Gay, Tr.'s, Sabine A-2, ne nw 1-7-12, 10-inch 58 ft, dr 2090 ft. D. H. Reddick et al's Scretchfield 1, 18-9-12, sd 3310 ft. Pelican Nat. Gas Co.'s La. Long Leaf 7, nw sw 10-7-11, 6⅝ 2320 ft, tested dry 2600 ft, arr perf. Sabine Lbr. Co. 7, 11-7-12, top marl 2325 ft, 6-inch cas 2320 ft, 600 ft oil in hole, wo, td 2399 ft. La. Long Leaf 8, nw sw 4-7-11, dk. P&G Oil Co.'s Williams 1, 21-7-12, rig. T. G. Shaw's Sabine 1 1-7-12, 6⅝ 2324 ft, sd 2505 ft. Essco Pet. Co.'s La. Long Leaf 1, 35-8-11, 6-inch 2346 ft, dry show oil, sd 2600 ft. Trans-America Oil Co.'s Carter 1, 36-8-12, top Z. marl 2311 ft, 6-inch 2211 ft, 700 ft oil in hole, wo 2540 ft. Texas Co.'s Stokes 1, nw se 10-7-11, wosr, td 2550 ft; Stille 2, ne nw 3-7-11, 10-inch 96 ft, 6⅝ 2320 ft, td 2338 ft. Longoria et al's Belton 1, 31-9-12, rig. Franks et al's Dew 1, 22-8-11, 6-inch 2111 ft, td 2211 ft. D. M. Lide's Ponder 1, 15-7-11, top marl 2393 ft, top chalk 2407 ft, 6-inch 2385 ft, hfo wosr, td 2800 ft; Ponder 2, ne nw 15-7-11, dk. W. M. Coates' Sabine 2, nw sw 1-7-12, lcn; Sabine B-2, sw sw 1-7-12, lcn. Wilson & Sons' Gandy-Garrett 1, 4-5-13, dr 2232 ft. Tom David's Smith 1, 27-8-10, dr 2700 ft. Merritt et al's La. Long Leaf 1, 33-8-11, 6-inch 2294 ft, sd 2500 ft. Tarver et al's Baker 1, nw ne 36-8-12, top marl 2209 ft, 8-inch 2212 ft, top chalk 2224 ft, base chalk 2752 ft, top Blossom 3040 ft, dr 4000 ft. Jno. Woodley's Sabine 1, ne se 12-8-12, 10-inch 103 ft. H. W. Perritt's Bowman-Hicks 2, (formerly B-1) 10-inch 72 ft, dr 1860 ft; Bowman-Hicks 3, 2-7-12, rig; Bowman-Hicks B-3, se sw 2-7-12, rig. Triangle Pet. Co.'s Sabine 1, sw sw 36-8-12, 6⅝ 2274 ft, setting 4½ cas 2274 ft, 6-inch leaking. Diffie & Barrett's Lites 1, se nw 34-8-11, 10-inch 105 ft. Frank Melat's Sabine 1, ne sw 6-7-11, 10-inch 106 ft, dr 1650 ft; Sabine 2, ne nw 14-7-12, 6-inch 2250 ft, no chalk, sd 2550 ft. J. M. Thompkins' Stoker 1, 10-7-11, sp 10-inch 105 ft. Lyons & Neely's Sabine 1, sw ne 12-7-12, 10-inch 120 ft, dr 935 ft. Magnolia Pet. Co.s' Lucius 1, nw ne 2-3n-12w, 13⅜ cas 204 ft, coring sandy shale 2148 ft. Gautier et al's Meshell 1, se nw 30-8-12, lcn. Ohio Oil Co.'s Bowman-Hicks 6, se nw 2-7-12, lcn.

TENSAS PARISH—Seip et al's Fowler 1, 10-10-10e, sd 905 ft. A. R. Willis' Curry 1, 39-11-12, sd 2780 ft.

UNION PARISH—Ouachita Nat. O&G Co., Inc.'s, Smith 1, sw ne 36-20-2e, cemtd 13-inch cas 280 ft, dr 300 ft (corrected depth).

WEBSTER PARISH—Gehrig Co.'s Miller 1, ne sw 16-18-10, 12½ cas 200 ft, base chalk 2070 ft, co to resume dr in red beds 3340 ft. D. H. Coyle's Frazier 1, ne se 27-23-11, dk. Cassidy & Davis' Nickerson 1, ne sw 29-23-10, dk. Red Hawk Oil Co.'s Matthews 1, se nw 11-23-9, rig.

OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al, Sornick 1, nw c se, fshg 2070 ft. T 26n, R 1w, Sec. 32, Boucher et al, Jefferson 1, ne c sw, lost hole 1175 ft, to skid.

HARPER COUNTY—T 25n, R 20w, Sec. 12, Empire, Bruce 1, sw c ne ne sw, show oil 7161-7173 ft, dr 7925 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Collmer 2, ne c ne sw, lost tools 5640 ft, sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show water 4649 ft, dr 4905 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, C.O. 5825 ft.

NOBLE COUNTY—T 21n, R 1e, Sec. 12, Barnsdall et al, Mich 1, nw c sw, hfw 3050-55 ft, dr 4677 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet. Co., Phillips, c nw sw, hfw 4150-60 ft, sd 4537 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy & Consolidated Drlg. Co., Quier 1, se c sw, sd 3970 ft.

KAY COUNTY—T 28n, R 3e, Sec. 24, Summitt Drlg. Co. et al, Hays 1, nw c ne nw, dr 1600 ft.

OSAGE COUNTY—T 28n, R 7e, Sec. 4, L. G. Stanley et al, 1, se c sw, dr 1374 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 3e, Sec. 26, Wentz Oil Corp., Lillie 1, se c sw ne, fshg 4095 ft. T 22n, R 5e, Sec. 2, Sherry et al, Millsap 1, se c sw, sd 1750 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool, Berry 1, nw ne sw, sd 1810 ft.

LINCOLN COUNTY—T 13n, R 6e, Sec. 8, Atlantic, Beebe 1, sw c ne sw, lcn.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, 3690 fsg csg and dr by.

MUSKOGEE COUNTY—T 11n, R 19e, Sec.

21, E. Mills et al, Martin 1, nw c se, sd 1001 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw c nw se, sd 5682 ft. T 8n, R 14e, Sec. 14, C. O. Cannady, Smith 1, sw c ne nw nw, rig and tools.

OKLAHOMA COUNTY—T 14n, R 3w, Sec. 32, Mid-Kansas, Messer 1, sw c, sand 6690-6771 ft, td flowed 425 bbls after shot of 190 quarts; now shut in. T 12n, R 4w, Sec. 17, C. F. Cuniff, Trustee, Orphanage 1, sw c ne sw se, sd 6700 ft td.

McCLAIN COUNTY—T 7n, R 2w, Sec. 22, Prairie & Slick, Perkinson 1, sw c nw, dr 6652 ft.

CLEVELAND COUNTY—T 6n, R 1e, Sec. 20, Harris & McNeal, Corbett 1, c sw ne, Wilcox 6749 ft, td 6760 ft, D&A.

OKFUSKEE COUNTY—T 11n, R 8e, Sec. 11, Carter et al's Keys 1, sw ne sw, td 4225 ft, swab 50 bbls from Hunton 3950-4060 ft.

POTTAWATOMIE COUNTY—T 10n , R 4e, Sec. 10, Shell's Baker 1, nw c se, lcn.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al's Bruner 1, se c nw, rig.

POTTAWATOMIE COUNTY—T 7n, R 3e, Sec. 19, Droppleman et al's Fundis 1, se c ne, dr 5373 ft, hfw.

ROGER MILLS COUNTY—T 13n, R 21w, Sec. 10, Richfield O&R's Hiatt 1, se c, rig. T 12n, R 24w, Sec. 23, Ute Oil Co. et al's Williams 1, c sw, sd 3245 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey's Robinson 1, c ne nw, sd 150 ft.

CADDO COUNTY—T 9n, R 13w, Sec. 18, J. J. Wright & Shell's Boys 1, ne c, lcn.

WASHITA COUNTY—T 8n, R 19w, Sec. 29, Snodgrass et al's Blocker 1, nw c, dr 700 ft. T 8n, R 18w, Sec. 21, Burns & Prince's Dock 1, sw c, dr 100 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Roy Good et al's Cliffel 1, nw c, sd 1760 ft. T 7n, R 21w, Sec. 23, H. A. French et al's Murphy 1, sw nw se, dr 1235 ft.

HARMON COUNTY—T 4n, R 24w, Sec. 17, Harmon-Tex Oil Co.'s Headley 1, ne c, show oil and gas 2374-92 ft, sd 2593 ft.

COMANCHE COUNTY—T 3n, R 9w, Sec. 3, Okla. Nat. Gas Co.'s Doeble 1, ne c sw sw sw, sd 1450 ft.

JEFFERSON COUNTY—T 7s, R 6w, Sec. 35, Brown & Gouin's Cox 1, sw nw ne, dr 2210 ft.

HUGHES COUNTY—T 5n, R 11e, Sec. 15, J. J. Wright's Roberts 1, se c sw, 2M gas 915-18 ft, sd 1645 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee Oil Co.'s Phillips 1, ne c sw, lcn.

COAL COUNTY—T 2n, R 8e, Sec. 10, Whitney et al's Miller 1, se c ne ne, dr 760 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al's Guinn 1, nw c, show gas 36-72 ft, sd 500 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla. Drlg. Co.'s Anderson 1, se c ne se, td 2580 ft, dr 2650 ft.

BRYAN COUNTY—T 6s, R 7e, Sec. 14, W. A. Johnson's Ussery 1, se c, sd 325 ft. T 6s, R 9e, Sec. 35, O. P. Buxh's Commerce Trust Co. 1, ne c, sd 600 ft. T 7s, R 10e, Sec. 8, Bryan Oil Co.'s Childs 1, ne c se sw, dr 620 ft.

ALABAMA

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, sd in limey shale 881 ft. Hobson Bros. 1, 9-8.2w, sd 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, sd 700 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, dr 2075 ft (no recent report).

MISSISSIPPI

Company, Well and Location	Initial Production Bbls.	Depth
ALCORN COUNTY—		
Alcorn Pet. Co., Matthews 1, 14-2s-7e	*	2735
MONROE COUNTY (Amory)—		
Amory Pet. Corp., Carter 3, 7-13s-17w	¶½	2400
RANKIN COUNTY (Jackson Dist.)—		
Pearl River O&G Co., Pate 3, 12-5-1e	¶45	2376

ALCORN COUNTY—Alcorn Pet. Co.'s Matthews 1, se se 14-2s-7e, junked abn td 2735 ft.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft 13⅜ cas 1389 ft standardizing in hd lime at 2834 ft.

COVINGTON COUNTY (Collins Dist).—Miss. Gulf O&G Co.'s Pope 1, nw ne 35-8n-16w, 12½ cas 126 ft tested dry thru ds in limey green sand 1740-77 ft. United Prod. Corp.'s McIntosh 1, sw ne 5-8n-16w, 12½ cas 805 ft, dr rock 1610 ft, formerly S. P. Borden et al's test).

CHICKASAW COUNTY—Hightower & Golsan's Fleming 1, 20-13s-3e, sd 1562 ft.

GRENADA COUNTY—Carter Oil Co.'s Dubard 1, nw nw 18-22-4e, setting cas to shut off fresh water flow at 350 ft.

HINDS COUNTY (Jackson Dist.) — Mrs. Ella Rawls Reeder's State Land 1, sw nw 25-6-1e, sd 2905 ft. Jackson O&G Co.'s Central Cotton 1, sw nw 3-5-1e, dk. Love Pet. Co.'s Maley 1, se nw 15-5-1e, elev 257.3 ft top Midway shale 2387 ft top chalk 2437 ft 6⅝ cas 2487 ft killed after flowing heavy oil, sw and making 3 mil ft gas several weeks, to cement bot hole try sut off sw, td 2495 ft. Pirtle & Flint's Payne 1, 27-6-1e dk pat. Southern Pet. Co.'s Wilson 1, se ne 23-6-1e, sd 20 ft. Miss. Pet. Co.'s Solvent 1, sw sw 14-5.1w, top Midway shale 2970 ft, fsh td 3042 ft. Howard Oil Co.'s Jackson College 1, nw nw 9-5-1e, 2½ cas 15 ft, sd. Atkisson et al's Wiggins 1, nw ne 33-6-1e, elev 307.8 ft top Midway shale 2392 ft top chalk 2490 ft cemtd 4½ cas 2458 ft 6-in 2490 ft killed after coming in making gas due to leaky 6-in cas. Downey 1, ne ne 27-6-1e, rig. Kennedy et al's Fee 1, ne ne 34-6-1e, lcn. Gulf Ref. Co.'s McLaurin 1, sw ne 30-6.2e, top Midway shale 2392 ft wo to drill plug in 9-in cas cemtd 2466 ft. Cane River O&G Co.'s Kabbes 1, ne sw 15-5-1e, elev 262 ft top Midway shale 2435 ft top chalk 2541 ft losing returns in hd sand and red beds at 3270 ft. Love et al's Ridgeway & McGehee 2, ne nw 2-5-1e, elev 271 ft, rig. Iowa Gas Co.'s Payne 1, nw nw 15-5-1e, elev 271 ft top Midway chalk 2476 ft set 6-in cas 2476 ft. Miss. Pet. Co.'s Baptist Orphanage 2, ne se 28-6-1e, rig. Feazel O&G Co.'s Garrett 1, se ne 2-5.1e, dr 2070 ft. Love Pet. Co.'s Taylor 1, se nw 34-6-1e, 15½ cas 50 ft, 10-in 780 ft, dr 2150 ft.

JASPER COUNTY (Bay Springs Dist.) — Bay Springs Pet., Inc., J. H. Keyes 1, nw ne 21-2n-10e, set 15½ cas 104 ft.

KEMPER COUNTY (De Kalb Dist.)—W. W. Jones' Rosenbaum 1, lcn not given, dk.

LA FAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rig.

MADISON COUNTY (Jackson Dist.) — Central O&G Co.'s Cameron 1, se se 11-9n-1e, 10-in 201 ft, arr set 6⅝ cas 1532 ft to test gas show in glauconitic sand.

MONROE COUNTY (Amory Dist.)—Amory Dev. Co.'s Bourland 1, sw ne 2-13-19, sd in brown sand 3007 ft. P. J. McAlpine's Cowart 1, ne sw 2-12-19, 10-in 694 ft arr set 8¼-in cas to shut off sw in red limerock 1125 ft, believed coming from above. Associated Royalties' School Board 1, sw se 16-15-17, sd 60 ft. Amory Pet. Corp.'s Harris 1, nw nw 18-13s-17w, rig. Carter 3, se se 7-13s-17w, 10-in 564 ft 6⅝ 2382 ft gauged 484,000 cu ft gas r.p. 380 lbs. td in shale 2400 ft.

NESHOBA COUNTY (Philadelphia Dist.)—Collins et al's Carter 1, se se 29.11n-12e, dk.

RANKIN COUNTY (Jackson Dist.)—Sabine O&G Co.'s Rankin Dev. Co. 1, sw ne 6-5-2e, elev 273 ft top Midway shale 2437 ft top chalk 2548 ft sd 2548 ft. Gulf Ref. Co.'s Hamilton Est. 1, sw sw 4-5-2e elev 284 ft top Midway shale 2537 ft top chalk 2620 ft 9-in 2610 ft top red beds 3059 ft dr igneous rock 4082 ft. Love et al's Muse 1, se se 32-7-4e, 12½ cas 600 ft, sd wo new boiler in sandy shale and bldrs 1240 ft. Love Pet. Co.'s Moore 1, se nw 28-6-2e, sd 900 ft. Millstein O&G Co.'s Gammill-Hartfield 1, sw se 6-5-2e, top Midway shale 2410 ft, top chalk 2496 ft, 7-in od cas 2476 ft, bailing heavy oil and sw arr swab td 2500 ft. Pearl River O&G Co.'s Pate 3, se sw 12-5-1e, elev 269.5 ft, 10-in cas 268 ft top Midway shale 2335 ft top chalk 2371 ft, est 45 mil ft gas td 2376 ft. Pioneer O&G Co.'s Ragland 1, sw sw 12-5-1e, dk. Ganzel et al's Stallings 1, ne ne 25-5-1e, cemtd 12½ cas 246 ft dr gumbo 1120 ft. Miss. G&F Co.'s Hanna 1, sw ne 14-5-1e, dk.

WARREN COUNTY (Vicksburg Dist.)—Dixie Pet. Co.'s Clark 1, nw nw 6-16.5e (corrected lcn), cemtd 12½ cas 77 ft dr sandy shale 172 ft. Vicksburg O&G Co.'s Dornbusch 1, sw ne 8-18n-5e, sd 1600 ft.

WEBSTER COUNTY—Cumberland Oil Co.'s Henley 1, 15-21-11, ta 1865 ft.

WINSTON COUNTY (Louisville Dist.)—Miss. Drilling Co.'s Scarbrough 1, nw nw 15-13n-14e, dr gummy shale 1910 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collett et al's Blackmer 2, sw nw 14-11s-4w, 12½ cas 103 ft dr selma chalk 1550 ft.

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
CLAY COUNTY—		
S. C. Jeffus, Tr., Underwood 2, 4-20-8e	*	237

CHICOT COUNTY—H. R. Smith's Lytle 1, 31-18-3, cemtd back to 2865 ft, arr whipstock old td 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 2, nw se 4-20-8e, 6-in 237 ft, dry abn td 237 ft.

CLEBURNE COUNTY—Donnell et al's Fee 1, 33-11-9, swedging out cas at 2300 ft, td 3740 ft.

DALLAS COUNTY—John James, Tr.'s Fordyce Lbr. Co. 1, ne nw 11-9s-15w, 10-in 176 ft, sd 212 ft. E. C. Brewer, Tr.'s Hillman 1, se ne 20-10-13, 10-in 88 ft dr gummy shale 1831 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-3n-19w, cas pulled hfsw td 3756 ft.

GRANT COUNTY — Spann & McClung's Sarah Page 1, sw nw 3-3-12, lcn.

HOT SPRINGS COUNTY — John Watkins Tr.'s Cunningham 1, 11.5-16, sd 100 ft. Cleary Bros. et al's Hinson 1, 19-4s-16w, 11 ft sand sd 1604 ft.

JOHNSON COUNTY—Ark. La. P. L. Co.'s Hudson 1, se ne 14-10-24, 10-in 2607 ft. cemtd 8-in cas with bradenhead 2875 ft dr hard lime 2892 ft. Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LA FAYETTE COUNTY—Crawford Drilling Co.'s Vaughan 1, 25-19-25, rig. McIver et al's Hattle 1, nw ne 1-20-26, sd 20 ft.

TENNESSEE COUNTY—Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LITTLE RIVER COUNTY—Buck Oil Co.'s Taafe 1, 25-12-32, co td 2502 ft.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd while ur 5 3/16 cas at 3570 ft td 3610 ft.

MADISON COUNTY—J. W. Baxter's Hallem 2, cent sec 17-16-26, sd 405 ft. Hallem 3, ne sw 1-17-26, sd 42 ft.

MILLER COUNTY—E. & F. Oil Co.'s E. L. Beck 1, 36-15-26, cemtd 6⅝ cas 2792 ft. recemtd 4½ cas at 2957 ft, td 2961 ft. Lenz et al's Johnson 2, 24-15-26, est depth 4110 ft. Johnson 3, ne nw 24-16-26, sd 2850 ft. Bullock Oil Co.'s Hervey 1, 2-15-26, coring 2753 ft. East Texas O&G Co.'s Hervey 1, 2-15-26, sd 900 ft. Gusher Bend Oil Co.'s Adams 1, nw nw 24-14-26, 10-in 115 ft, dr 250 ft. O'Mara et al's Person 1, 31-15-25, lcn. Fitzwater et al's Beck 1, sw se 33-15-26, 10-in 85 ft. sd. Salzer & McRae's Ross 1, ne nw 9-16-26, 10-in 98 ft, sd 475 ft.

OUACHITA PARISH—Belmont et al's Dean 1, 16-15-17, top red beds 2765 ft sd with junk in hole 2907 ft. A. B. Turner Tr.'s Brown 1, 23-15.18, 6⅝ cas 2164 ft top red beds 2700 ft, changing to 3-in ds td 2812 ft. Copenhaver et al's Elliott 1, se se 11-15-17, ds struck 2114 ft. Wesson & Bonner's Wesson 1, sw nw 22-15-19, 6⅝ cas 2083 ft, wo power to pump 300 ft fluid in hole td 2169 ft. J. D. Raynolds' Pace 1, ne se 21-15-19, (Stephens townsite) 10-in 44 ft, cored Nacatosh 1505-11 ft, did not test Nacatosh dr hd cap rock 2155 ft.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8.24, show heavy oil 567 ft coring 1998 ft. E. R. Henderson's Lee 1, sw se 31-8s-24w, dk.

POPE COUNTY—Ark. La. P. L. Co.'s McFadden & Brooks 2, ne nw 15-9-21, 13⅜ cas 1900 ft, tested est 1 mil ft gas 3285 ft cemtd 8⅝ cas 3415 ft, dr water sand 3435 ft.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, dr with r tool 1405 ft, td 1536 ft. Ark. Valley Gas Co.'s Turner 1, se se 27-5n-30w, lcn.

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd after testing sw 3515 ft.

UNION COUNTY—Hickman et al's Hogg 1, 35-16-17, top Graves sand 2351 ft red beds 2779 ft sd 2902 ft. Oilfields Corp.'s J. A. Simmons 1, nw nw 9-18-13, ta 3602 ft. Rice et al's Whatley 1, 7-17-15, sd 1520 ft. H. L. Hunt, Inc.'s Swilley 5, ne ne 28-16-16 6⅝ cas 2678 ft, 2000 ft oil trace sw in hole wosr td 2689 ft. Swilley 6, se se 21-16-16, 1000 ft fluid 40%

sw in hole wosr td 2711 ft. Marine Oil Co.'s W. B. Thompson B-3, se ne 10-18-13, 10-in 292 ft, dr 3360 ft. Southern Prod. Co.'s Wingfield 1, se nw 16-19-15, 10-in cas 210 ft, sd. Wilson & Chapman's Hadley 1, ne sw 3-18-13, sp 10-in 102 ft, dr 125 ft. Sunby et al's Perdue 2, nw nw 33-16-14, dry thru ds 3210-17 ft, cored sand 3221-24 ft, coring 3234 ft.

WASHINGTON COUNTY—Taylor et al's Runny 1, 1-13-29, sd 1702 ft. Lincoln Lease Holding Synd.'s Townsite 1, 30-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY—J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-21, sd while fsh tools td 5710 ft.

NORTHERN CALIFORNIA

KERN COUNTY

ANTELOPE VALLEY—Meridian Oil Co.'s No. 1, 11-9-15, dr gray sand 3768 ft.

BELRIDGE—Belridge Oil Co.'s No. 27-8, 27-27-20, dr shale 2717 ft; No. 35-8, 35-27-20, rigging up rotary; No. 35-33, 35-27-20, dr shale 1000 ft; No. 35-48, 35-27-20, dr shale 2006 ft. General Pet.'s Berry 1, 30-28-21, re-dr shale 2900 ft. Ohio's Bloemer 1, 36-27-20, dr shale 4935 ft. Reward Oil Co.'s Associated 4, 34-27-20, re-dr 2415 ft. Richfield's Belridge 1, 22-27-20, dr shale 6560 ft. Rio Grande's Fay 1, 18-20-22, lcn. Standard's McPhail 1, 36-27-20, dr shale 4525 ft; McPhail 2, 36-27-20, dr hard shale 3700 ft. Texas' Martin 1, 22-27-20, dr hard shale 3710 ft. Union's Belridge 17, 36-27-20, dr hard shale 4050 ft; Gibson 7, 36-27-20, lcn; Bacon 1, 21-28-20, lcn. K. C. Wallace's No. 1, 32-29-21, dr shale 4068 ft.

BUENA VISTA HILLS—Federal Drilling Co.'s No. 1, 20-31-24, 9-inch cas cmt 5175 ft, td 5232 ft. Midland Exploration Co.'s Thornber 3-5, 34-31-24, co 4965 ft.

BUTTONWILLOW — Nordon Oil Corp.'s Salisbury 1A, 7-29-24, sd 6583 ft. Superior's LCK-1, 32-29-25, dr shale and sand 4600 ft.

DELANO — Chanslor-Canfield Midway Oil Co.'s Villard 1, 31-25-28, rig.

DEVIL'S DEN—Standard's Alferitz 1, 14-25-18, re-dr 1450 ft.

EL TEJON—J. J. Ritchie's No. 1, 33-11-19, dr gray sand 5460 ft.

McKITTRICK — California Oil Producers' Wisecarver 1, 30-30-22, re-dr 4740 ft.

SEMITROPIC—Shell's Williams 1, 17-27-23, dr gray sand 9090 ft.

WASCO—Cities Service Pet. Co.'s Core Hole 1, 16-28-24, dr shale 1400 ft.

WEED PATCH—Mohawk Oil Co.'s Wharton 1, 32-30-29, dr shale 5900 ft. Shell's Morris 1, 32-30-29, dr surface sand 100 ft; Porter 1, 29-30-29, dr shale 5050 ft; Porter Day 1, 29-30-29, dr in Temblor 6838 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s Permit 191-1, 24-4-9, plugging back to shut off bottom water, well flowed water and oil on production test, td 4191 ft, will make another test above 4100 ft.

CUYAMA—Hart Pet. Co.'s No. 1, 27-10-26, lcn.

GATO RIDGE—Barnsdall's Tegnazzini 1, 9-8-32, fsh 6030 ft.

GOLETA—General Pet.'s More 3, dr hard shale 4150 ft.

LOS ALAMOS—N. S. Wilson's Midwest 1, 2-7-33, 12½-inch cas cmt 1790 ft, td 1800 ft.

ORELLA—General Pet.'s Erburu 8, 32-5-30, plugged to 2730 ft for test of upper showings, td 4070 ft. Prairie Oil and Gas' El Capitan 1, dr shale 1700 ft.

POINT CONCEPCION—Standard's Gerber 1, will test upper showings, td 6820 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 5150 ft.

VENTURA COUNTY

FILLMORE—Associated's Young 1, 16-4-20, lcn.

HOPPER CANYON — George H. Hadley's No. 1, 13-4-9, co 1010 ft.

OJAI—Drednaught Oil Co.'s Canet 1, coring shale and streaks oil sand 1010 ft. Knudsen and Schmidt's No. 1, 12-4-23, dr shale 800 ft.

RINCON — Chanslor-Canfield Midway Oil Co.'s Hobson A-2, 23-3-24, dr shale 7777 ft. Continental's Grubb 1, 23-3-24, bldg rig.

SANTA MONICA MOUNTAINS—Olympic Corp.'s Calabasas 1, 18-1-17, making test, td 5669 ft, flowed salt water.

SANTA PAULA—San Pedro-Pt. Fermin's Kellerman 2, 13-4-21, dr shale 2335 ft.

SESPE—Merchants Pet. Co.'s Cochran 1, 1-4-20, dr shale 225 ft. Superior's Kirtlan 1, 15-4-21, dr shale 5240 ft.

VENTURA—Prairie Oil and Gas' Sexton 1, 30-3-22, dr shale 8200 ft.

MISCELLANEOUS

FRESNO COUNTY—Associated's Jacalitos 1, co 3595 ft, will deepen.

KINGS COUNTY—T. H. Purman's Avenal 1, 36-23-17, dr shale 2035 ft. Murphy Oil Co.'s Brennan 1, 20-23-20, dr shale 2950 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 5555 ft.

MONTEREY COUNTY—Pacific Inland Oil Co.'s No. 1-A, 19-23-15, dr shale 1000 ft.

SAN LUIS OBISPO COUNTY—C. Shockley's Carpenter 1, 13-32-13, dr gray sand 2340 ft. Continental's Hellman 1, 26-25-11, dr hard shell 3120 ft. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, fsh for cas 2965 ft.

SANTA CRUZ COUNTY—Wellton Oil and Gas Co.'s Galletly 1, dr shale 2715 ft.

TULARE COUNTY — Inland Valley Oil Co.'s Smith-Rea 1, 24-17-24, dr 2065 ft.

YOLO COUNTY—George F. Getty's Guinda 1, 23-12-3, sd 2007 ft.

SOUTHERN CALIFORNIA

ALHAMBRA—George Wolfe's Construccio 1, 19-1-12, rig.

ATHENS—McKeon Oil Co.'s Sunny side Heights 1, 1-3-14, coring sand 4400 ft.

BELL—Cudahay Community Oil Ass'n.'s No. 1, dr sand and shale 315 ft.

CORONA—Western Gulf Oil Co.'s Abacherli 1, 12-3-8, dr shale 1400 ft.

CULVER CITY—Olympic Oil & Realty Co.'s

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No. 1, 14-2-15, co 4840 ft. Taylor Oil Co.'s No. 1, oil showings 4600 ft.

EL MONTE—Rancho Oil Corp.'s Harmon 1, 30-1-11, dr shale 2400 ft.

FULLERTON — Standard's Bastanchury 1, 21-3-10, dr shale 7575 ft.

HERMOSA — California Ventura Oil Co.'s Sadler 2, 31-3-14,pumping oil and water, td 5330 ft. Smith Pet. Co.'s No. 1, rig.

NEWHALL — Southern California Drilling Co.'s Needham 5, 13-3-6, rig.

NEWPORT—Standard's Irvine 1, 26-6-10, coring 3315 ft. T. F. Gesell's No. 1, 29-6-10, dr shale 775 ft.

OLIVE—The Texas Co.'s Olive Community 1, 7-4-9, 18-in cas cemt 875 ft.

PLAYA DEL REY—West Port Pet. Corp.'s No. 1, 27-2-15, fsh for pipe 5590 ft.

PUENTE—Bardeen Pet. Corp.'s No. 1, 2-2-10, dr shale 2315 ft. C. F. Shannon's No. 1, 3-2-10, placing on pump, td 4620 ft. Vega Pet. Corp.'s Rowland 1, 10¾-in cas cemt 2420 ft, td 2510 ft. Rucker & Sproule's Grazide 2, 22-2-10, dr shale 800 ft.

REPETTO HILLS—The Texas Co.'s No. 1, 4-2-12, lcn.

SAN FERNANDO—Mack Oil Co.'s Deer Lake 1, 6-2-16, rig. San Val Oil Co.'s No. 1, 14-2-16, dr gray sand 1650 ft.

SANTA MONICA—Hines Pet. Corp.'s No. 1, 8-2-15, lcn.

SAN JUAN CAPISTRANO—Okay No. 2's Foster 2, 13-8-8, sr 5220 ft.

WILMINGTON — Wilmington Consolidated Oil Co.'s No. 1, rigging up rotary.

MOUNTAIN STATES

WYOMING

BIG HORN—Westland Oil, Inc., 24-54-95, gas at 510 ft. Wisconsin Holdings, 5-55-97, sd 665 ft. Yellowstone Petroleum Co.'s 1, 7-57-87, sd 4080 ft.

CARBON—Midwest Refining Co.'s U. P. 27, 11-20-81, sd 1810 ft. Petroleum Exploration Co. of California, 29-23-89, dr 900 ft.

CONVERSE—Converse O&G, 27-33-72, sd 1410 ft. Pioneer Oil Co., 5-31-70, to dr new test.

FREMONT—Texas Prod. Co.'s State 1, 36-44-95, taking test over from contractors, td 4485 ft. P. & R. 1, 33-34-92, sd 4906 ft. Yellowstone Oil Co.'s 1, 15-39-92, td 185 ft. Ward O&G Co., 28-34-90, gas show 1500 ft. Maghee et al., 2, 35-33-99, dr 800 ft.

LINCOLN—Mountain Oil Corp.'s 1, 36-25-116, dr 1500 ft. Wyo. Prod. Co., 14-24-113, dr bel 1000 ft.

NATRONA—Summit Oil Co., 21-33n-80w, dr 1150 ft. Midwest Oil Co.'s 11, nw 32-34n-77w, coring 4925 ft. Cuyler Oil Co., 23-36n-85w, rig. Golden West Oil Co., 36-36-81, ready to res at 1242 ft.

NIOBRARA—West Virginia Synd., 7-35-62, td 987 ft, casing trouble.

PARK—Resolute Oil Co., 17-57-101, sd 8250 ft, wait for orders.

SWEETWATER—Vermillion Oil Co.'s 1, se 16-12-99, sd 3500 ft.

UINTA—Park City O&G Co., nw 6-15-113, dr bel 2400 ft.

NEW MEXICO

CHAVES—Warman Oil Trust, Seibert 1, ne 27-13e-24e, dr 202 ft.

DE BACA—Matador Oil Co.'s Wood 1, se 6-4n-20e, ready to resume at 3005 ft.

LUNA—Angelus Oil Mining Assn. 1, se 20-21s-10w, sd 6000 ft.

McKINLEY—I. W. Halsell's Santa Fe 1, 17-18-9w, sd 3255 ft. Wms et al's A.T.S.F. 1, se 19-18-8w, sdtr 1900 ft. United Kern Pete, Inc., 1, sw 1-18-11w, lcn.

OTERO—Ernest et al's 1, se 20-25s-7e, wtg for equipment 1328 ft.

QUAY—Silverstein et al's Wetzel 1, 29-12n-33e, stand 175 ft.

RIO ARRIBA—Berringer et al's Hartman 1, ne 8-29-7w, sd 825 ft. San Juan Pete Co., Gov't 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, se 12-29n-7w, sd 751 ft.

SAN JUAN—Dorothy Oil Co.'s Terwiliger 2, 29-30-9w, stand 1750 ft. Kutz Canon O&G Co.'s Day 1, 20-28n-10w, dr 2096 ft. Childers Dr. & Pr. Co.'s Westwater 2, nw 23-31-16w, sd 2525 ft. Rio Grande Dev. Co.'s 2, 9-29-11w, stand 1380 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, dr at 4660 ft. J. B. Witt O&G Co.'s Magnum 1, se 33-29n-11w, mvg in. San Juan Leaseholds, Bowman 3, ne 30-30n-15w, dr 2535 ft.

SAN MIGUEL—Pioneer O&G Co.'s Thun-

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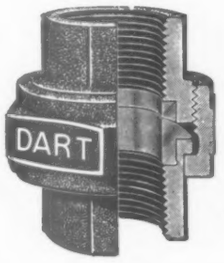

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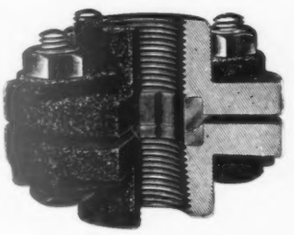

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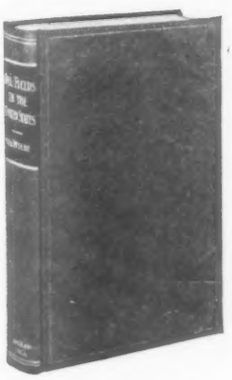

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~

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derbird 1, nw 14-15n-16e, wait 2375 ft. Starr Oil Co.'s Adams 1, ne 25-17n-16e, ur 6⅝-inch at 3356 ft. Cibola Pete Co.'s Crown 1, se 9-13n-14e, dr 840 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 12-12n-22e, dr 1542 ft. Kull et al's Cherryvale 1, ne 34-17n-21e, ready to spud.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-10e, stand 1643 ft. J. B. Witt O&G Co.'s Kutchem 1, 12-17-7e, dr 1465 ft.

VALENCIA—Acme Oil Co.'s N. M.-Ariz. Land Co.'s 1, 26-6-3, dr 5071 ft. Harlan et al's Harlan 1-A, 5-6n-2e, dr 3965 ft.

COLORADO

ADAMS—N. M. Slatt's Hills 1, se 27-26-64w, ready to res at 2500 ft.

ARAPAHOE — McDebb Dr. Co.'s Fitzsimmons 1, 7-45-55, water trouble at 5737 ft. Marrett et al's U. P. 1, nw 17-5-64, stand 1600 ft, hfw.

ARCHULETA—Stand. of Colo's Fitzhugh 1, se 32-33n-1e, stand 503 ft. Brooks 1, nw 2-32n-2e, spud 30 ft; Wirt 1, nw 34-33n-12, sdtr 105 ft.

BACA—A. R. Jones Oil & Optg. Co., Boice Cattle 1, 22-34-42w, ur 6⅝-inch to 4360 ft.

EL PASO—Utemore Synd., Cannon 1, ne 10-16s-66w, stand 1100 ft.

HUERFANO—Parker Club, Fee 1, se 4-28s-68w, sd 4116 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4s-59w, dr at 3821 ft.

LAS ANIMAS—Oklahoma Drlg. Ass'n, Radcliffe 1, ne 28-28-52, sd 100 ft.

LA PLATA—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, prep to spud. Klem Pete Corp.'s Olbert 1, se 9-25n-12w, dr 3081 ft. Murchison Oil Co., Doescher 1, nw 29-33n-13w, sd 1225 ft.

LINCOLN—Kelley Oil Co.'s State 1, 36-14n-57w, stand 3380 ft.

MOFFAT—Mtn. Fuel Supply's State 2, tract 37-12-100, dr 1374 ft. S. H. Keoughan et al's State 1, sw 16-4n-101w, sd 2950 ft.

MONTEZUMA—Haller et al's Haller 3, ne 33-36n-14w, stand 902 ft.

MORGAN—Ind. Terr. Illum. Oil Co.'s State 1, ne 16-1n-57w, dr 4026 ft.

PUEBLO — North American O&L Co.'s Boescher 1, 7-22-66, dr at 1290 ft. Anchor Oil Co.'s Easley 1, sw 35-22s-67w, dr 520 ft.

PARK—So. Park Oil Co.'s Milligan 1, se 13-9s-76w, dr 1616 ft. So. Park O&G Co.'s Eache 1, ne 6-9s-76w, stand 605 ft.

ROUTT—Gorham et al's Omholt 1, 29-4n-87w, sd 115 ft.

WELD—Eastman Oil Co.'s Steele 1, ne 14-2n-67, sd 165 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, dr 1724 ft.

MONTANA

BIG HORN—Continental Oil Co., 21-6s-35e, dr deeper from 3400 ft.

CASCADE—Andover Oil Co.'s Floweree 1, se 20-21-2w, run cas at 1405 ft.

CHOTEAU — Williston-Shelby O&G Co., Flack 1, se 12-28-11e, dr 2820 ft.

FERGUS—Northern State Oil Co.'s Woodward 1, se 20-14n-24e, res at 1500 ft. Melton Corp., 24-21n-17e, cas to 2800 ft.

GLACIER—Fulton Pete Corp.'s Blackfeet 1, ne 28-36n-12w, stand cem 1195 ft to 820 ft. B. & H. Oil Co.'s Haines 1, se 2-34-6w, dr 267 ft. Jeffries-Hoerr's Dawson 1, ne 7-31-12w, no report.

GOLDEN VALLEY—Texas Pacific's 1, sw 21-8s-21e, dr 2350 ft.

JUDITH BASIN—Newton-Waddingham, se 15-16n-10e, dr bel 1110 ft. Pownam Oil Co., se 24-19n-11e, lcn.

LIBERTY—Northaldn O&G Co.'s Yurman 1, 32-33-5e, sd 5475 ft. Sunburst, McLaren 1, se 9-37-6e, sd 3115 ft. Utopia Oil Co.'s Eleanor Ass'n 1, sw 11-33-6e, td 3190 ft. Perkins et al, Brown 1, nw 24-35-4e, sd 150 ft.

POWDER RIVER—Creel et al, 7-8s-50e, dr 1200 ft.

ROSEBUD—Prairie O&G Co.'s 1-X, 26-10-39e, dr on lug at 2100 ft. Prairie's 1, Contract 4, 28-10-38, fsh tools at 1355 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft.

TOOLE—Liquid Gold Oil Co.'s Roberts 1, ne 25-36-12, dr 1450 ft. International Roy. Hold. Co.'s Henry 1, sw 26-35-36, repair rig at 2510 ft. A-1 Petroleum Co., se 24-36-1e, rigging and laying line pipe.

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◄ LETTERS ►

Dear Sir:

"I have been a subscriber, staunch supporter and warm friend of THE OIL WEEKLY for several years. I take no other Mid-Western magazine.

"Since December 5, 1930, however, I have noted that there have been no reports from South Texas. I have an interest in several pieces of property in various counties in that region, all of which come under the South Texas report. It is very disappointing when I open my copy of the magazine and find these counties among the missing.

"I do not wish to be understood as endeavoring to dictate editorial policy, or to exercise remote control in the running of your good magazine. Only—the principal feature for which I take THE OIL WEEKLY is missing. I have always been able to count on your reports from this region heretofore. I'd like to see it again in its place where I've always found it.

"Best of good wishes for 1931, and a profound hope that we shall soon see better times in our mutual industry—oil."

JOHN P. RUGGLES,
Petroleum Engineer and Geologist.
Jamestown, New York.

If subscriber Ruggles will pardon the simile in expressing it, the reason for the omission of reports from South Texas was that we were pulling the rods. Reference to current issues will, we believe, convince him that production has been greatly improved by the change. And so far as dictating our editorial policy is concerned, it is obvious that we cannot be governed by each individual subscriber's wishes; we do welcome their comments, however, and are influenced by them.

* * *

Dear Sir:

"Have read your article entitled 'Hobbs drilling and Production Methods and Equipment in THE OIL WEEKLY for January 2, and I would like very much to know if there is any water in this area anywhere between the Bowser sand, 3100 to 3300 feet, and the Hobbs pay, 4000 feet below."

K. E. MERREN,
Shreveport, U. S. A.

Mr. Floyd Swindell, author of the article in question, says that he did not have a detailed log of each well, but during the investigation made in preparing the article, he examined those of a number of representative tests in various parts of the field. These show that there is no water between the two horizons mentioned, in fact no appreciable amount of water in any sand below those encountered in the Triassic series, between 200 and 1450 feet. The water supply for the field is obtained from prolific sands in the uppermost part of this series. Only one or two wells in the field has encountered bottom water. This information has been checked with several operators.

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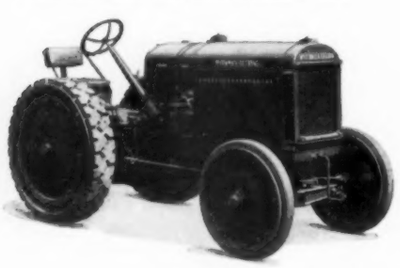

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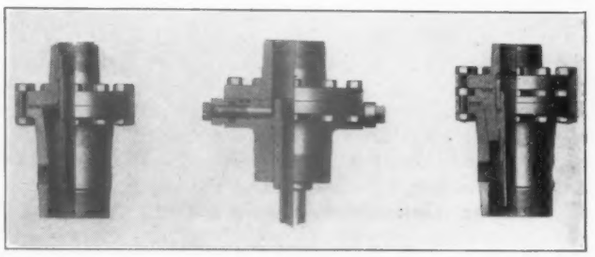
New Tubing Head

Regan Forge & Engineering Company

Regan Forge & Engineering Company, San Pedro, California, has designed and developed a new type tubing head which permits the moving or adjusting of tubing in a producing well.

The construction of this device consists of a new type of flange or flanges and a coupling, in combination with their present design of tubing head body. All of the features of the tubing head equipment are retained and in addition a construction is provided whereby tubing-moving devices can be suitably attached.



Regan Tubing Head

The operation is accomplished by hydraulically plugging the tubing with an automatic plug and removing the uppermost flange with the Christmas tree. The lower flange remains intact, and retains the seal and permits the installation of the Regan tubing gas controller and snubber. With the aid of the tubing gas controller, tubing can then be added or removed as conditions may require, after which the tubing is again landed, the Christmas tree attached, the automatic plug removed and the well again put on production, without any harmful effects to the oil sand.

Several types of these adjustable tubing heads are being manufactured, to meet all of the requirements of the varying conditions.

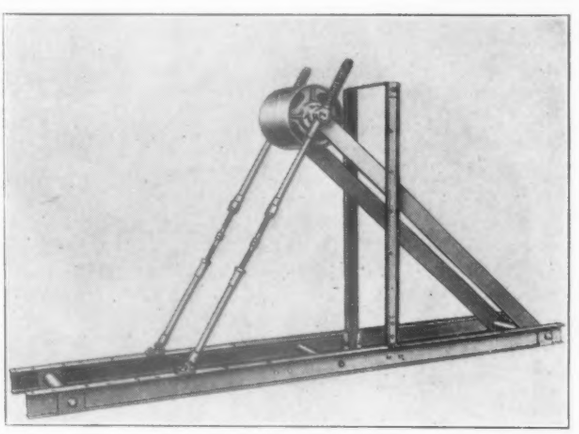
More complete details may be obtained by addressing the manufacturers at San Pedro, California.

Floating Type Belt Idler

Oil Well Supply Company

Oil Well Supply Company, Oil City, Pennsylvania, announces the "Oilwell" floating type belt idler, the purpose of which is to provide a method of tightening endless belts used on beam wells. This is accomplished by means of a turnbuckle arrangement.

When installing the idler, the turnbuckles are opened to the maximum length, with the lower end of the turnbuckle



Oil Well Belt Idler

anchored in the first holes nearest center of the base, and the proper tension is obtained by means of the turnbuckles which lower the pulley. The tightening may be accomplished either while the rig is in operation or shut-down.

As the belt becomes older and stretched, and the turnbuckles are taken up to the fullest extent, and further adjustment can be made by moving the turnbuckle anchors to another of the six sets of holes along the base. These six holes permit six such adjustments. Two springs above the pulley provide a means for maintaining an even tension of the belt at all times since, with each impulse of the engine, the springs absorb the sudden shock. This function of the idler is important because it reduces not only the strain on the belt, but also reduces the shocks that would ordinarily be transmitted to the rig and rods.

Another function of the idler is to obtain increased area of contact of the belt around the band wheel. By means of this idler an arc of contact from 180 to 240 degrees is obtained.

The frame of the idler is of structural steel, with the base being 14 feet long. The pulley is 18 inches in diameter with an 18-inch face, and is equipped with Timken bearings, Alemite lubricated. The weight of the "Oilwell" belt idler complete is 1350 pounds.

Trucktor

The Trucktor Corporation

The Trucktor Corporation, 156 Wilson Avenue, Newark, New Jersey, is marketing to the oil industry the Trucktor, a combination six-wheel and crawler attachment manufactured to fit all standard makes and sizes of trucks. The addition of the Trucktor to any standard motor truck is made to accomplish three distinct purposes, as follows:

Trucktor converts an ordinary four-wheel truck into a six-wheel vehicle with an increased payload capacity due to the addition of the extra wheels and the four extra tires. The truck operates on 10 pneumatic tires after the Trucktor has been added.

By means of a simple roller chain running on sprockets mounted between the dual tires, the Trucktor extra wheels are driven from the truck rear wheels, giving four-wheel drive. The feature of the Trucktor four-wheel drive is that the roller chain can be readily detached when the four-wheel drive is not required, and this eliminates the mechanical troubles and additional expense inherent in any four-wheel drive unit. The driving roller chains can be carried in the tool box and attached when the extra traction is required in the same manner as skid chains.

Trucktor—side view

Trucktor—rear view

By the addition of the special light and strong alloy steel, heat-treated track shoes, this standard motor truck offers the tractive ability of a heavy duty tractor. The tracks combine truck speed with tractor performance and only the Trucktor uses tracks. The tracks running on the dual pneumatic tires are the only element subject to any great amount of wear and are readily attached and detached.

Full information on the Trucktor is available by writing the manufacturers, 156 Wilson Avenue, Newark, New Jersey, or to Hobbs Manufacturing Company, 609-615 North Main Street, Fort Worth, Texas.

J-M No. 350 Packing

Johns-Manville Corporation

Johns-Manville Corporation, 292 Madison Avenue, New York City, announces placing on the market the J-M No. 350 semi-metallic packing, which is plaited up square from a combination of asbestos fibre and non-abrasive metal. It is thoroughly lubricated and graphited.

This packing is designed for use against steam, air, water and oil, on centrifugal rods at high or low pressures and at temperatures up to 500 degrees Fahrenheit. It may be used in reciprocating rods and plungers, either alone or in combination with other rod packings.

J-M No. 350 Packing

It is available in coil ring form, as shown in an accompanying illustration, in sizes one-quarter-inch and up. A modified packing, No. 351 semi-metallic, is designed for use against gasoline and other cold mineral oils.

The company will more completely outline this new product upon request to the above address.

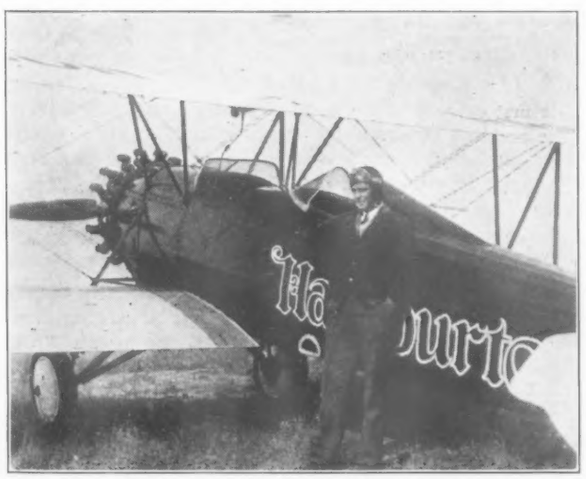
Manufacturer and Supply Dealer Notes

Gaso Pump & Burner Manufacturing Company's export office, 149 Broadway, New York City, in charge of A. V. Simonson, announces a shipment of 32 pumps to the Baku fields in Russia, six large pumping units to Venezuela, and other shipments to Trinidad, Egypt and other foreign ports.

This company recently announced a new completely enclosed Timken bearing equipped pump, together with the announcement of a worm drive application to a pump for the use of high speed driver with only one internal reduction; the latter also being Timken bearing equipped. Gaso Pump & Burner Manufacturing Company's Tulsa headquarters office announces further that a newer unit for pipe line pumping is now in process. The latter unit has been fully checked and tested for the service for which it is designed to perform, and will be placed on the market shortly.

The company, besides manufacturing and distributing a full line of pumps for pipe line, water and refinery service, manufactures practically all items used in connection with pipe lines, such as strainers, tees, ells, clamps, saddles, and specializes on cast iron and malleable ground joint flange unions.

Specialty Oil Tool Company, Los Angeles, announces that Winn Stout, sales representative in connection with the Sotco mud weight recorder, is now engaged in introducing this new product in the Mid-Continent and Gulf Coast territories. His work in Oklahoma is in connection with E. L. Stone, sales manager for Specialty Oil Tool Company in the Mid-Continent territory, Oklahoma City headquarters, and Lucey Products Corporation of Tulsa, "Socto" distributors in the Mid-Continent and Gulf Coast territories. The purpose of the Socto mud weight recorder is to keep an accurate check on the weight of the mud and to allow the driller to keep a predetermined weight.



Joe Taylor and his plane

Jay Taylor, district superintendent, Halliburton Oil Well Cementing Company, covering the cementing operations of the company in Kansas and New Mexico and the Panhandle and West Texas, uses a Stearman Biplane powered with a Wright J-5 motor in working out of his Amarillo, Texas, headquarters. Taylor, a graduate of the Petroleum Engineering School at Norman, Oklahoma, finds that the use of the plane has increased his ability to cover his territory about 75 per cent.

Sales representatives and engineers of Lufkin Foundry and Machine Company, in attendance at the annual meeting at headquarters office, Lufkin, Texas, December 29, 30 and 31. The introduction and development of new equipment was discussed, engineering papers read and plans for the new year formulated. The meeting closed with the annual employees banquet which 400 employees and invited guests attended. The main address at the banquet was that of W. C. Trout, vice-president and general manager, who talked on the subject, "Progress and Prosperity." A cabaret act and a "Badger fight" featured the entertainment.

National Supply Company, with main offices at Toledo, Ohio, has recently completed arrangements with the Petroleum Engineering, Inc., of Tulsa to be distributor and representative for Petroleum Engineering, Inc., in the sale of gasoline plants, refinery units and fractionating equipment for special refinery products.

Petroleum Equipment Company, Los Angeles, has been appointed exclusive distributor in California for Oil Center Tool Company's special flange unions of the renewable bronze ring type. A large stock order has been placed, and Petroleum Equipment Company will make deliveries from all its stores.

In a news announcement published in the January 2 issue of THE OIL WEEKLY concerning the appointment of H. A. Kassebaum as sales manager of Rapid Fire Prevention Company, Ltd., Los Angeles, we erred in stating that he formerly served as assistant to the president of General Petroleum Corporation. The statement should have been that he formerly served as assistant to the president of California Petroleum Corporation.

Oil Center Tool Company, Houston, has been appointed as exclusive distributor in Oklahoma and New Mexico on Gearench Manufacturing Company's Petol Chain tongs, Petol friction tongs and Petol carrying tongs.

Heydrick Mapping Company, Wichita Falls, Texas, announces the completion of two separate combination maps that cover the entire North Texas district on a 10,000-foot scale. Combination "K" covers Wilbarger, Wichita, Archer, Young, Throckmorton, Baylor, Hardeman, Foard, Knox and Haskell Counties, while combination "L" involves Clay, Jack, Montague, Wise, Cooke and Denton Counties. These maps are up to date on dry holes, producers and drilling tests, and may be obtained on cloth or paper.

W. H. Steigerwald Company, Inc., has moved to its new building at the corner of Dallas Avenue and Hutchins Street, Houston. This company is the Houston territory distributor for B. F. Goodrich Rubber Company's mechanical rubber goods division.

▼ MANUFACTURER AND SUPPLY DEALER NOTES ▼

W. C. Trout, who has been actively in charge of the business of Lufkin Foundry & Machine Company of Lufkin, Texas, 25 years, was elected president of that organization at a meeting of stockholders January 12, succeeding the late J. H. Kurth. Mr. Trout is patentee of numerous oil industry appliances, and it was under his management that the company grew from a small jobbing shop to one of the largest plants in the Southwest.

J. H. Kurth, Jr., succeeds Mr. Trout as vice-president and general manager of Lufkin Foundry & Machine Company. The latter's business career has previously been devoted to the lumber industry and to banking. For the past 10 years he has been president of the Vernon-Parish Lumber Company of Kurthwood, Louisiana.

Gulf Coast Tank Company, Inc., territorial agents for Butler tanks and steel buildings, Houston, has opened a branch at Arp, Texas, to serve the East Texas Oil fields. This new branch is completely stocked with Butler A. P. I. bolted steel tanks, V. B. Hughes, president, announces.

Hercules Motors Corporation, Canton, Ohio, announces the appointment of four new distributors in Canada and the United States.

In Canada, J. S. Innes, Ltd., of Toronto, will represent the company in that city and throughout its natural trading area. Also Tractor & Thresher Company, Ltd., of Saskatoon will distribute Hercules engines and power units in the Canadian Northwest.

Of the two new Hercules distributors in the United States, one is the E. B. Kelley Company of New York City. This firm will represent the company in the New York metropolitan area and in addition, in Long Island City, Albany, Buffalo, Mt. Vernon, Rockville Center, New York and Newark, New Jersey, through branch offices located at these points. The other new Hercules distributor is A. H. Krigger & Company of Pittsburgh.

Mace Cox, superintendent for McFarland Oil Company in Southern California, recently got some unusual results in coring in the Signal Hill field. Several unsuccessful attempts were made to mill up or drill by a broken blade of a fishtail bit which was lying across the bottom of the hole. The crew ran a Crum-Brainard core bit of 4½-inch core capacity into the hole and at the end of five hours and 15 minutes pulled an 18-foot core on top of which was a steel core cut out of the fishtail blade. The steel was 1½ inches thick and diamond-sub set and hard faced on one side. The core bit was found to be only 1/16 of an inch out of gauge on the reaming wings and in the "throat." It was declared to be in sufficiently good condition for further coring. This core was made from 4057 to 4077 feet. No extra heavy diamond-sub settings nor any extra heat treating processes were used on the core bit for this particular job, this being mounted with the ordinary amount of Titan metal inserts and faced with tube Titan metal.

M. B. Skinner Company, Sample and Falcon Streets, South Bend, Indiana, has issued a folder entitled, "A Clamp for Every Pipe Leak." This company manufacturers pipe repair clamps and saddles, valve reseating tools and pipe benders. A copy of the folder will be sent on request.

Ampco Metal, Inc., formerly American Metal Products Company of Milwaukee, Wisconsin, has opened a Mid-Continent branch office at 327 Exchange Bank building in Tulsa, to serve the Southwest territory including the oil industry.

The Tulsa office will be in charge of C. A. Fulmer who will cover Oklahoma, Kansas, Texas, Louisiana, Arkansas and New Mexico for the company which manufactures acid-resisting metal products for producing, pipe line and refinery uses and also non-sparking tools for all purposes.

Standard Supply & Hardware Company, 822 Tchoupitoulas Street, New Orleans, has issued a folder describing the "Clipper" belt lacers, product of Clipper Belt Lacer Company, Grand Rapids, Michigan. This folder is profusely illustrated, some views showing the operation of the various types of the lacer. A copy of the bulletin is available by writing the distributors at the address given above.

A. O. Smith Corporation, Milwaukee, Wisconsin, announces the publication of a 54-page bulletin, entitled "The New Way of Designing and Building Gas Lines with Smith-Welded Pipe." This bulletin supersedes "The New Way," published some time back by the company, and contains a great deal of valuable data and interesting information for men concerned with pipe and pipe lines. "Factors Effecting a Minimum Cost of Gas Pipe Lines" is a subject covering 15 pages of the bulletin, each page being illustrated with an engineering chart to illustrate the subject matter. A 24-page section of the bulletin is devoted to pictorial outlines of laying lines, including methods and pipe connections. The remainder of the bulletin is devoted to covering engineering data on Smithwelded pipe. A copy of this bulletin is available by writing the company headquarters at Milwaukee.

Oil Conservation and Fuel Oil Supply

The present competitive situation in the energy field is highly complicated. A change in the supply of any one of the several competing forms of energy has widespread effects. It necessitates a readjustment of world consumption of the various energy fuels among the different countries, among the geographical regions of consumption within these countries, and among the major uses of fuel.

The first essential to intelligent consideration and discussion of the problem of oil conservation is comprehensive information concerning the basic facts underlying the problem. This calls for a survey of world consumption and production of the various forms of energy. In order to supply this need the Conference Board has undertaken a series of studies, of which this book represents a thorough treatise dealing with the consumption and production of fuel oil in relation to oil conservation.

Its various chapters set forth in a comprehensive manner the modern sources of world energy, world supply and consumption of fuel oils, production and consumption of fuel oil in the United States and effects of a possible decline in fuel oil supply. It is not only replete with important basic facts on the fuel oil situation but presents some vital conclusions that have an important bearing upon the future of this form of energy.

Published by National Industrial Conference Board, Inc., New York, N. Y. Price $2.50.

Squeaks From the Bull Wheel

▼ ▼ ▼

"Who was the first man?" asked the visiting minister.

"Adam," the children answered in chorus.

"Who was the first woman?"

"Eve," they all shouted.

"Who was the meekest man?"

"Moses."

"Who was the meekest woman?"

Everyone was silent. The children looked blankly at one another, but none could answer. Finally a little hand went up, and the preacher said: "Well, my boy, who was she?"

"There wasn't any."

Father: "Young lady, do you mean to tell me you've been carrying that money around in your stocking?"

Daughter: "Why, daddy, you told me to put it where it would draw interest."

A young man and his girl friend were arrested and taken before the judge for being parked along a lonely highway. Just before reaching the courthouse, the young man said, "Now for goodness sake, don't give your right name."

So they appeared before the judge, who asked, "Young man, what is your name?"

"Ben Neckin, your honor," replied the young man.

"And yours, young lady?"

"Ann Howe," replied the maiden demurely.

Sunday School Teacher—And when it rained 40 days and 40 nights, what happened then?

Bright Willie—The natives said it was very unusual.

"Why is it, Rastus," an old negro was asked, "that so few negroes ever commit suicide?"

"It's' dis way, boss," he replied "when de white folks get into trouble dey sets down to worry over it, dey get desperate and kill demselves. When a nigger sets down he goes to sleep."

"What sort of a fellow is Jack, dear?"

"Well when we were together last night the lights went out, and he spent the rest of the evening repairing the fuse!"

A balky mule has four-wheel brakes,
A billy goat has bumpers;
The firefly is a bright spot light,
Rabbits are puddle-jumpers;
Camels have balloon-tired feet
And carry spares of what they eat;
But still I think that nothing beats
The Kangaroo with rumble seats.

George (attacking piece of chicken): "This must be an incubator chicken."

Sam: "Why?"

George: "A chicken with a mother couldn't be so tough."

"Judge," said the contractor to his lawyer, "Doctor says I got about a month to live. I want to make my will.

"Fix it so my overdraft in the First National goes to my wife—she can explain it to them.

"My equity in my automobile I want to go to my son. He will have to go to work then to meet the payments.

"Give my unpaid bills to the bonding company; they took some awful chances on me and are entitled to something.

"That new-fangled machine on the job, I want the resident engineer to have. He made me buy it; maybe he can make it work.

"My retained percentage, give to the state. I never expected to get it, anyway.

"My equipment, give to the junk man. He has had his eye on it for several years.

"My keg I want to go to my bootlegger. I hope it costs him as much to keep it wet as it has me.

"I want you to handle the funeral for me, Judge. Any undertaker will do, but I want these six material men for pallbearers. They have carried me so long they might as well finish the job."

—Dixie Contractor.

"You sometimes find a pearl in an oyster stew," remarked the waiter, pleasantly.

But the customer only grunted.

"I'm looking for oysters."

Negro Caller at Hospital: "I came to see how mah fren' Joe Brown was gettin' along."

Nurse: "Why, he's getting along fine; he's convalescing now."

Negro: "Well, I'll just sit down and wait till he's through."

Dear Old Lady — Captain, would you please help me find my stateroom?

Captain — Have you forgotten what number it is, madam?

Lady—Yes, but I'll know it if I see it again; there was a lighthouse just outside the window.

Willis—Hello, old man, where have you been?

Gillis—Just got back from a camping trip.

Willis—Roughing it, eh?

Gillis—You bet. Why one day our portable dynamo went on the bum, and we had no hot water, electric lights, ice, heat, or radio for almost two hours.—Life.

A negro bought a piece of ham but the next day he took it back to the butcher and said: "Say, Boss, dis ham am no good, an' Ah doesn't want it."

The butcher said: "Why, Sambo, of course that ham is good; it was just cured last week."

"Well, Boss," replied Sambo, "den it done had a relapse."

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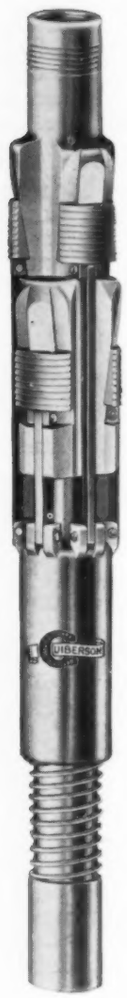
YOU CAN STOP A TRAIN WITH A WAVE OF YOUR ARM



» » » BUT A WAVE OF YOUR ARM WHEN YOUR TUBING FALLS IS ONLY ONE OF DESPAIR

It's remarkable what you can do, sometimes, just because it's you. Remarkable, also, what you can't do - - - you or anybody else. Some things can be successfully interrupted - - - but when tubing falls, for instance, if there's no catcher to stop it, it's gone and that's all. And there's production lost, timed wasted, ruined tubing and plenty of money to pay.

The Guiberson Catcher will stop a string of falling tubing within three inches, neatly and positively. The strong spring operates without the aid of fluid in the hole. Heavy striker weight overcomes the retarding action of mud or paraffin. Dovetail tracks guide the slips instantly and accurately to the casing walls. If you want to *feel* sure of things, *make* sure of them first.

NEW DUPLEX CATCHER

Developed to meet safety requirements of tubing in deep wells. Multiple slips, actuated by a common means. Information on request. *Fully patented.*

"Better Be Safe Than Sorry"
THE GUIBERSON CORP.
Box 1106, Dallas, Texas
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Use a GUIBERSON CATCHER

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